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HISTORY of ENDEMIC HAWAIIAN BIRDS

Part I. POPULATION HISTORIES--SPECIES ACCOUNTS
Freshwater Birds: Hawaiian Gallinule 'Alae-'ula

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TABLE OF CONTENTS

LIST OF TABLES.	ii
CPSU/UH Avian History Report 12	
Freshwater Birds: Hawaiian Gallinule 'Alae-'ula	
ABSTRACT.	iii
2. <u>Gallinula chloropus sandvicensis</u>	
OBSERVATIONS, REPORTS, AND SPECIMEN RECORDS	2
Introduction.	2
Historical Status and Distribution in the Archipelago	2
Island of Kaua'i.	4
Islandwide Status and Distribution.	4
Inter-island Status and Distribution.	5
Productivity.	6
Island of Ni'ihau	7
Island of O'ahu	7
Islandwide Status and Distribution.	7
Inter-island Status and Distribution.	8
Island of Moloka'i.	9
Island of Maui.	11
Island of Hawai'i	11
CHRONOLOGICAL DISTRIBUTION OF RECORDS	12
GEOGRAPHICAL DISTRIBUTION OF RECORDS.	12
SUMMARY AND CONCLUSIONS	13
APPENDIX.	30

LIST OF TABLES

Table

1	'Alae-'ula Recorded Statewide by HDFG on Water Bird Surveys.	15
2	'Alae-'ula Censused by HDFG on Kaua'i, 1956-1981 . .	16
3	Relative Abundance of 'Alae-'ula in 10 Quadrangles, 1956-1982, Island of Kaua'i.	17
4	'Alae-'ula Censused by HDFG in 149 Habitats, 1956-1982, Island of Kaua'i.	18
5	'Alae-'ula Censused by HDFG on O'ahu, 1962-1981. . .	24
6	'Alae-'ula Censused in 92 Habitats, 1938-1982, Island of O'ahu.	25
7	Distribution by Decade of 2,906 Records of 'Alae-'ula in the Hawaiian Island, from 1979 to 1982	29

ABSTRACT

Gallinula chloropus sandvicensis is a medium sized slate-grey water bird (Rallidae) with a red bill and frontal shield. Currently resident only on Kaua'i and O'ahu, this race existed historically on Moloka'i, Maui, and Hawai'i. Exhaustive search of literature and government reports uncovered some 2,756 observational notes, collection records, census reports, and related statements on relative abundance and geographical distribution from 1779 to 1983. Data are individually numbered, arranged in geographical and chronological order, referenced and systematically reviewed.

Abundant evidence shows that 'Alae-'ula were common and widely distributed in swamps and ponds throughout the major islands in the 1890's. By 1903, population decline had been noted in areas where they had been formerly abundant. The last record of the occurrence of this species on the island of Hawai'i was in 1898, on Maui in 1900, and on Moloka'i in 1973.

On O'ahu, comprehensive surveys of over 90 water bird habitats in the 1970's and early 1980's found substantial numbers of 'Alae-'ula only in the lotus and taro fields of Haleiwa where a maximum number of 118 were counted in 1979, and only a few in a dozen or so other habitats.

On Kaua'i, systematic surveys of some 140 water birds habitats in the 1970's and early 1980's recorded only 50-75 'Alae-'ula in the Hanalei area, a dozen or so in two other areas, and 2 or 3 in 12-15 lesser populated habitats.

Total populaton of 'Alae-'ula Statewide was estimated at 750 in 1982, the majority obviously missed in semi-annual censuses. In view of its long uninterrupted decline, and lack of substantive conservation measures, it is concluded that this species will continue to slowly depopulate for an indefinite period.

2. Gallinula chloropus sandvicensis

'Alae-'ula or Common Moorhen (Hawaiian Gallinule)

Gallinula chloropus sandvicensis is a medium-sized (12-14 1/2 inch long) slate-grey, water bird (Rallidae) with a white side stripe, red bill and frontal shield (Peterson, 1961). It differs chiefly from its nearest relative, the Common Moorhen (or Gallinule) of North America (Gallinula chloropus chloropus) by having a more swollen and extended frontal shield which extends to the rear beyond the eyes (Rothschild, 1900). Formerly found on all five of the major Hawaiian Islands, 'Alae-'ula are currently self-sustaining only on Kaua'i and O'ahu. Six birds from O'ahu were introduced on Moloka'i in 1983 to re-established the species on that island.

The earliest specimen of record is labeled 1839, collected during the visit of the French vessel Venus to Hawai'i. Streets (1877) first described the 'Alae-'ula from examples taken after specimen(s) obtained earlier by Peale in 1840-1841 were lost. Distribution of some 46 of 61 specimens found in 4 of 12 known repositories is as follows: American Museum of Natural History (15); Harvard Museum of Comparative Zoology (15); and Bernice Pauahi Bishop Museum (10). The type specimen and 5 others are at the National Museum of Natural History (Banko, 1979 report).

Various characteristics of the 'Alae-'ula are included in early monographic treatments of Hawaiian birds by Wilson and Evans (1893), Rothschild (1900), and Henshaw (1902). Schwartz and Schwartz (1949) furnished information on the population status and geographical distribution of this species from statewide surveys carried out nearly a half-century later. Berger (1972) combined information from these and other sources in a contemporary summary account. By far the largest store of recent information on the status of the 'Alae-'ula is contained in unpublished reports of the Hawaii State Division of Fish and Game (now the Hawaii State Division of Forestry and Wildlife), and U. S. Fish and Wildlife Service. Recent studies by Shallenberger (1977), Byrd and Zeillemaker (1981), and Nagata (1983 MS thesis) and much specific information on the reproductive biology and population ecology of this species.

The writer wishes to thank S. E. Nagata for 1979-1980 census data of Haleiwa lotus fields and Hamakua marsh-pasture, and R. J. Shallenberger (USFWS) and M. Morin (HDFG) for supplying information and commentary helpful in interpretation of agency census records.

OBSERVATIONS, REPORTS AND SPECIMEN RECORDS

Introduction

Drawing conclusions from a large volume of historical information on relative abundance and distribution of 'Alae-'ula requires that data be geographically arranged and chronologically ordered in a systematic fashion, as outlined in the Introduction to Part I (CPSU/UH Avian History Report 4). Records presented thus in the Appendix satisfy criteria for basic documentation and comparative analysis.

In the following descriptive account, sources of published information are cited by author and year in the usual style. One, two, or three digit numbers in parenthesis refer to specific records in the Appendix. Sources of published and unpublished information listed in the Appendix may be traced to complete references in the bibliography.

Historical Status and Distribution in the Archipelago

As indicated in the Appendix (No.'s 1-35), there are some 40 records related to the population status and distribution of the 'Alae-'ula in the Islands from 1839 to 1983. Most observers in the 1890's point out the common status and broad distribution of this species in a wide variety of habitats on all major islands of the Archipelago. Later records, comprised almost solely of data by Hawaii State Division of Fish and Game and U. S. Fish and Wildlife Service, reflect the apparent absence of this bird in most habitats censused on all major islands except Kaua'i.

Dole (1879) was the first to document the habitat and island distribution of this species, remarking simply that it frequented "swamps, ponds, streams and kalo (taro) patches" throughout the "whole group" (of Islands) (2). Wilson (1893), from observations made on his ornithological survey of 1887-1888, seems to have been the first to mention the population status of 'Alae-'ula, calling it "common in swampy taro patches throughout Hawai'i" (3). Munro (1944), recalling observations of birds while assisting W. Rothschild's collector H. C. Palmer in 1891, stated the 'Alae-'ula of that period was "a common bird" on most of the larger islands (4). Rothschild (1900), from specimens collected by Palmer on Kaua'i, O'ahu and Moloka'i from 1891 to 1893, obviously overstated the distribution of this species by writing that it was "distributed all over the Archipelago" (5), apparently overlooking the absence of this species on Lāna'i, Ni'ihau, and in the Leeward Islands. Perkins (1903), after noting its broad distribution in suitable localities over the Islands, added that while it often frequented the rice fields and taro patches in the lowlands it "did not appear to follow the streams into the mountains" (6).

Henshaw (1903), drawing on ornithological observations made during a period of residency in Hilo from 1894 to 1904, seems to have been the first to note the general decline of 'Alae-'ula, writing that this species was "becoming scarcer and scarcer, being slaughtered...usually shot and thrown away...(and) quite exterminated in many localities" (7,8). There is an absolute gap of information on the status and distribution of this species for a 45-year period following Henshaw's report. Schwartz and Schwartz (1949) conducted a survey of game birds in the Islands during an eighteen-month official survey in 1946 and 1947, stating that the status of this species was "especially precarious" on O'ahu, Maui, Moloka'i (9). Perhaps in reference to the report by Schwartz and Schwartz (1949), Shallenberger (1977) noted that it was reported rare on Maui, Moloka'i, and O'ahu in 1947 (10). In any event, a fifteen-year gap in information on the status of the 'Alae-'ula occurred between the comprehensive survey by the Schwartzes in the late 1940's, and inclusion of this species in Statewide water bird counts by Hawaii Division of Fish and Game in the early 1960's.

Although the practice by a few local residents of counting 'Alae-'ula in prominent wetland areas began on O'ahu in the 1930's, it was not until the 1940's and 1950's that the tradition was extended by Hawaii Audubon Society members to habitats on other islands. While periodic State-wide water bird surveys were initiated by Hawaii Division of Fish and Game in 1956, it was apparently not until 1963 that numbers of 'Alae-'ula counted on various islands were combined to furnish a beginning toward a Statewide census of this species. Supplementary counting of 'Alae-'ula by the U. S. Fish and Wildlife Service began in the late 1960's. Hawaii State Division of Fish and Game officially recognized the 'Alae-'ula as an endangered species in 1969 (16a). Hawaii Audubon Society members extended census coverage in the 1970's. Objectives and improved census methodology were not, apparently, placed in effect by HDFG until 1 July 1975. For these reasons, and because of the highly secretive nature of 'Alae-'ula, analysis of Statewide data which follows should be regarded as highly qualified and not necessarily comparable from year to year, particularly before 1975. Data to support the 1977 population estimate of 750 (35a) was no doubt collected by HDFG and USFWS biologists.

Census figures recorded by HDFG and its cooperators are supplied for the various islands as indicated in Table 1.

HDFG officially recognized the 'Alae-'ula as an endangered species in 1969 (16a). Improved census methodology was adopted in 1975-1976, some years later (19).

Shallenberger (1977 report) concluded from his studies that 1) 'Alae-'ula appeared to be far more sedentary than A'e'o or 'Alae-ke'oke'o and do not seem to follow an annual migration pattern, 2) census data for this species do not

reflect real population size due to its wide distribution and secretive nature, 3) Kaua'i is clearly the most important stronghold of the species in the Islands, and 4) 'Alae-'ula were apparently absent from Moloka'i, Maui, and Hawai'i (22-25). In the Hawaiian Waterbird Recovery Plan, the HDFG/USFWS Recovery Team members estimated the 1977 Statewide population of this species to number ca. 750 (500 on Kaua'i and 250 on O'ahu), and stated that the primary objective of the Recovery Plan was to provide for and maintain a population of 2,000 (23a). In accounting for the decline of 'Alae-'ula censused from January 1977 to January 1978 (140 vs. 109), HDFG biologists speculated that the dry spring and summer in 1977 and resultant dispersal to uncensused habitats was a possible contributing factor, and that the comprehensive semi-annual counts were only useful as comparative indices to total population size and distributional patterns (26,27). HDFG biologists reported later that Statewide counts during summer censuses had been more or less stable for the last few years prior to 1980; that summer counts were difficult due to the dense vegetation in lotus and taro fields where they are chiefly found; and that winter counts appeared to be up, probably as a result of the more intensive surveys in the lotus fields of O'ahu since 1979. The last Statewide total population estimate of 750 is apparently based on foregoing counts and calculations of the Endangered Waterbird Recovery Team (Anon. 1982) (35a).

Island of Kaua'i

Islandwide Status and Distribution

Early naturalists directed little attention to the 'Alae-'ula. Bryan (1901) noted that this species was "especially abundant" in the swamps about Waimea on 4 May 1900, and it might be supposed that his remarks were generally applicable to other similar habitats about the island during that period. Miller (1903 field journal) recorded on 2 April that he experienced unsuccessful hunts two mornings and evenings in the marsh and pond back of the (?Lihu'e) mill, though it is not clear whether he would have considered this bird fair game if indeed any were seen (69). A period of more than fifty years apparently passed after the sole early record of Bryan (1901) before specific numbers of 'Alae-'ula were recorded anywhere on Kaua'i.

Numbers of 'Alae-'ula tabulated by HDFG biologists during January and July/August censuses are presented in Table 2 (36-49, 51-55, 57, 58, 60, 61, 63-67). As previously explained, census data is not necessarily representative of actual population levels, particularly before about 1975 when census objectives, criteria, and methodology were undeveloped.

A few statements and comments relative to the foregoing counts were made by HDFG census takers over the 26-year

time-span indicated. When biologists compared counts of August 1975 with those of January 1976 (88 vs 92) for example, winter populations were found to be of similar size to those of summer. Seasonal population stability may have been expected since 'Alae-'ula are known to be sedentary. Broods were noted throughout most of the year, though more prevalent during summer (56). Record numbers of 'Alae-'ula were censused during the severe winter drought of 1976-1977, populations apparently being less severely affected than those of Ae'o, 'Alae-ke'ole'o, or Koloa (59). The apparent decrease in numbers between 1977 winter and summer counts was attributed to the drought, i.e. greater dispersal of birds into habitats of dense cover where they were less visible, and/or to low productivity (62). Acknowledgment was also made of the fact that census methods in 1978 were inadequate to produce an effective measure of population trends (62).

It should be noted that some 73 'Alae-'ula were counted during the 14-15 December 1974 Christmas Count solely in the Kapa'a and LIhu'e areas (88, 89), the maximum tallied in any two areas during any year of Christmas Count record (80-87, 90-105); however, in Christmas Counts of four areas in 1979 some 74 were logged (99-103). All other Christmas Counts in these and other similar areas found this species in smaller numbers. A few miscellaneous records in various unspecified locations have little value for comparative analysis and will not be treated further (70-79).

Results of some 26 years of censusing 'Alae-'ula on the island of Kaua'i are summarized by quadrangle in Table 3.

Of a grand total of 1,566 'Alae-'ula counted in 1,546 censuses, some 903 (58 percent) were found in only a single quadrangle (HANALEI) on 152 (10 percent) of the total number of counts. An additional 249 individuals (16 percent) were located in the second most productive quadrangle (LIHUE) which received a total of 144 censuses (9 percent). Another 189 birds (12 percent) were counted in the third most populous sector (KAPAA) which received 254 counts (16 percent). Thus, of a total 1,341 'Alae-'ula censused (86 percent) were counted in 550 counts (36 percent) in some 54 habitats (36 percent) in only three of the ten quadrangles containing potential habitat.

Inter-island Status and Distribution

Numbers of 'Alae-'ula censused in some 149 habitats on Kaua'i from 1956 to 1982 are summarized in Table 4.

As borne out in Table 4, a major share of the total potential number of wetlands available to 'Alae-'ula on the island of Kaua'i was found to be unoccupied by this species. An average count of fewer than 0.4 individuals per survey was found on a total of 115 habitats (77 percent), while an

average of only 0.5 to 1.4 of this species were censused on an additional 15 areas (10 percent). Thus some 87 percent of listed habitats are either ineffectively searched or are under-utilized by 'Alae-'ula. Clearly, most of the 500 'Alae-'ula estimated on Kaua'i live in uncensused habitats.

An average of between 1.5 and 4.4 of this species were censused per survey on some 11 habitats (7 percent), as follows: 1.5 to 2.4 of this species per survey on Hanalei Trader Taro and Waipa Taro (HANALEI), Kōloaka'āpahu Reservoir and Waitā Reservoir (KOLOA), Ahukini Reservoir and Niumalu Flats (LIHUE); an average of 2.5 to 3.4 birds per survey on Hanalei P.O. Taro (HANALEI), Wailua/'Ōpaeka'a (KAPAA), and Mānā Ditches (KEKAHA); and 3.5 to 4.4 individuals per survey in Hanalei Valley and Wai'oli Taro (HANALEI).

Continuing the ascending order of habitat usage, an average of between 4.5 and 9.4 'Alae-'ula were counted in some 4 habitats, as follows: 4.5 to 5.4 in Wilcox Estate Pond (HANALEI), 6.5 to 7.4 in Līhu'e Plantation Settling Basin (LIHUE), 7.5 to 8.4 in Hanalei Taro (HANALEI), and 8.5 to 9.4 in the 4 Kīpū Reservoirs combined (KOLOA AND LIHUE).

The fourth group of habitats in terms of increased usage were found to be Hanalei NWR A/F (HANALEI) and Paradise Pacifica (KAPAA) averageing 12.5 to 13.4 individuals per count, Hanalei NWR L/S (HANALEI) averaging 18.5 to 19.4 per census, and Hanalei NWR (HANALEI) averaging 25.5 to 26.4 per tally. It must be realized that all Hanalei NWR census data include varying degrees of overlap. Also, as perviously pointed out, census methods have repeatedly been judged inadequate to produce an effective measure of population trends (62). Still, counts furnish some idea of relative usage.

Productivity

As reported for the period 1 July 1975 to 30 June 1976, broods have been observed on Kaua'i throughout most of the year, though principally during the summer months (56). Unfortunately, supporting data in the form of dates on which nests and/or young have been observed were not recorded. A few notes by other than HDFG observers indicates breeding has occurred over a seasonal range from May to November, and in the following localities: Wainiha Valley, 'Ōpaeka'a Strem, Paradise Pacidica, Līhu'e Plantation Settling Basin, and Niumalu Flats. Nesting of this shy and sedentary species no doubt occurs in many other habitats with similar characteristics. Intensive studies of productivity at Hanalei National Wildlife Refuge over a 5-year period from 1975 to 1980 have shown that, 1) clutch size of some 64 nests averaged 5.6 eggs, 2) 61 nests were 75 percent "successful", 3) 75 percent of 53 nests hatched, and 4) 64 percent of 55 broods fledged. In addition, 13 Class I broods averaged 4.3, 40

Class II and III broods averaged 2.8 and 55 broods fledged an average of 2.3 chicks per brood (190 a-g).

Island of Ni'ihau

Munro (1940, 1944, undated letter) indicates that 'Alae-'ula may, on occasion, visit Ni'ihau, however his use of the terms "almost unknown" and "hardly known", and lack of a single sighting by him or other early observers, creates doubt as to the presence of this species there during historical times. While surveys from aircraft in the late 1970's and early 1980's do not offer conclusive proof, this species has apparently never been sighted on Ni'ihau.

Island of O'ahu

Islandwide Status and Distribution

T. R. Peale collected the first specimen of 'Alae-'ula on O'ahu in an unmentioned locality visited by U. S. Exploring Expedition members in 1840 or 1841 (1612). Professor Behn secured another, also at an unnamed site, in 1846 (1613). H. C. Palmer obtained a total of 7 examples from unspecified areas on O'ahu during his 1891 to 1893 visit to the Islands (1614). J. Seabury and F. McGuire took 9 specimens from "marsh, rice and taro fields", presumably around 1900 (1615) when Seale (1900) termed this species "common" in "tule swamps, Kalo (taro) patches and fishponds all over the island" (1585). Except for the brief general note by Henshaw (1903) that this species was becoming "scarcer and scarcer" in all districts, L. Miller's obtaining an example in Honolulu on 15 June 1903 (2432), and W. A. Bryan's specimen collected in Diamond Head crater on 5 March 1907 (2430), there appears to be no further mention of this bird in published or unpublished accounts until A. Wetmore collected a single specimen at Kawainui on 20 August 1923 (2249).

Other early notes or records of 'Alae-'ula on O'ahu include field journal notes by J. d'Arcy Northwood that this species was seen 16 March 1924 on duck ponds by the side of a streetcar track in the McCully Tract, Honolulu (2433), that it was "plentiful" at Kawainui on 11 March 1934 (2250); collection of a single specimen by W. Paty at an undisclosed location on 22 December 1936 (1616); and D. Anderson's collection of another example in Nu'uuanu Valley on 22 December 1938 (2446).

Beginning about 1940, increasingly reliable and frequent counts of 'Alae-'ula were instituted by members of the Hawaii Audubon Society. Periodic surveys were initiated later by Hawaii State Division of Fish and Game, and U. S. Fish and Wildlife Service, as previously mentioned. While census data even today may not, for many reasons, be considered

representative of actual numbers, it is instructive to list total islandwide populations tallied for years in which periodic surveys have been conducted, as shown in Table 5 (1586-1611).

As indicated in Table 5, results of censusing 'Alae-'ula varied widely from 1962 to 1978. The data show substantial increases after 1978 when searching in Hale'iwa lotus and taro fields turned up comparatively large and previously unrecognized populations. Summer counts in these fields were found to be significantly less than winter censuses, presumably due to lower visibility of birds among unharvested crops (1611). In a recent study Nagata (1983 MS thesis) presented detailed census data indicating out-migration in summer and influx in winter in some fields (1689 a-s).

Inter-island Status and Distribution

As previously indicated, this species was both common and widespread in the abundant swampy localities of O'ahu before and shortly after the turn of the century. Conversion of wetlands to agricultural and residential purposes from 1900 to 1980 witnessed the disappearance of countless 'Alae-'ula in natural marshes, fish and duck ponds, rice and taro fields all over the island. It was during this period that this species was last reported from Moanalua, Damon Pond, Diamond Head, Kapiolani Boulevard, Waipahu Flats, Ka'elepulu, Kāne'ohe MCAS, Ala Moana Park, McCully Tract, Mid-Pacific Country Club, Nu'uuanu Valley, Salt Lake, Kuapā Pond, and numerous other unnamed habitats.

In recent years, as the number of wetland areas decreased, this bird has been reported in only about 58 of the more than 100 waters surveyed. Results of counts in some 92 actual or potential habitats from 1938 to 1982, mostly by HDFS biologists, are presented in Table 6.

As shown in Table 6, a major share of the total potential number of habitats available to 'Alae-'ula on O'ahu do not now support obvious populations. 'Alae-'ula have not been reported on some 34 of the 92 habitats surveyed (37 percent), while the species has disappeared from an additional 9 areas where they were formerly seen. Also, the average count of these birds on an additional 15 areas has declined to fewer than 2 seen per count.

On the positive side, a substantial population was counted in Hale'iwa lotus and taro fields (apparently where they had been for many years) by R. J. Shallenberger in 1977 (1685). Up to 113 birds have since been censused in this area, many more than in all other habitats on O'ahu combined. In an intensive study, Nagata (MS thesis, 1983) noted that 'Alae-'ula in Hale'iwa lotus fields bred year-round, with peak nesting apparently occurring 3 to 4 months after lotus was replanted. Nagata also noticed marked fluctuations in

population (up to 70 percent) occurred in one principal field, indicating dispersal to unknown localities, and hatching of 29 of 34 nests (45 percent) (1689 a-s).

The high counts of 'Alae-'ula in Haleiwa lotus and taro fields contrast sharply with those seen elsewhere on O'ahu. In recent years 3 or more individuals have been counted, on average, in only 7 habitats. Locations where 3 or more of this species have been reported in recent years are listed below in order of decreasing numbers: Hāmākua Ditch (Drive) (8), 'Uko'a (7), Ka'elepulu Canal (6), Hāmākua Drive (Ditch) (6), James Campbell NWR (3), Lā'ie Prawn Farm (3), and Kuapā Pond (3).

In the Hāmākua marsh-pasture (Ditch, Drive), Nagata (MS thesis, 1983) found a stable population of 'Alae-'ula apparently breeding year-round, observed second and third clutches and re-nests, recorded that nesting around the edges of ponds shifted to canal edges when marsh-pasture was dry, documented nesting success of 25 percent for 12 of 13 nests, and concluded that predation by mongoose appeared to be the major cause of nest failure (2317a).

In addition to the above information, there are some 41 census counts which represent aggregate numbers of 'Alae-'ula on more than one area. Noteworthy among these combined counts are the frequency of 6 recorded for Moanalua-Kalihi Flats in the 1940's, up to 7 (including 1 nesting pair) at the Honouliuli prawn farm until 1977, 13 in Lanikai-Kawainui dike area in 1978, and 15 counted in the same area, including Hāmākua Canal in 1979 (1617,1619,1620,1622,1645,1648,1651). In 1980 a total of 18 'Alae-'ula were counted in the Lanikai, Kawainui dike and marsh, along Hāmākua Drive - Quarry Road, and Kapa'a Landfill areas (1654). In such smaller and less conspicuous habitats, Christmas Counts by Hawaii Audubon Society members are more successful in finding this species than HDFG surveys of more areas of open water.

Island of Moloka'i

H. C. Palmer was evidently the first European to document the occurrence of 'Alae-'ula on Moloka'i, taking a total of 3 specimens in undesignated place(s) and stating that this species was "fairly common" at Pūko'o Fishponds in December 1892 (Rothschild 1900; Banko 1979 report) (2592,2620). Some three years later in February of 1895, O. D. Flood obtained 2 specimens in a Moloka'i taro field (2593). Schauinsland (1900) noted from a brief visit in 1896 and 1897 that this species was "met with" at a small lake which lay at an elevation of about 2000 feet (?Meyer's Lake) (2602). G. C. Munro secured a single example at an undisclosed location in December 1902 (2601). Bryan (1908), following his 15 April to 15 June 1907 visit, wrote that

'Alae-'ula were "common" there, reporting them seen in taro ponds in Wailau, Pelekunu, and Hālawā Valleys (2582).

There seem to be no records of 'Alae-'ula in Moloka'i from 1908 through 1932, a gap of 25 years. However, on 4 April 1933, Northwood (field journal) reported that this species was seen at Pauwalu and Kalainaula (2583). Munro (1943) reported that 'Alae-'ula nested and raised chicks at Kainalu Lagoon (2619). Childs (1945) noted 3 seen on the mudflats near Kamalō, apparently earlier that year (2615). Pekelo (Shallenberger 1977 report) stated that this species was common in the taro patches of Hālawā Valley and in northshore valleys prior to 1946 tsunami (2584).

Pekelo (1964) reported 'Alae-'ula "common but localized" in the brackish fishponds at 'Ō'ō'ia, Kaluapuhi, and Honomuni ponds from 1954 to 1964 (2585). Hanson (1958c) also noted this species in Hālawā Valley during this period on 31 December 1957 (2617), however Hawaii Division of Fish and Game tallied it only 5 times in annual January waterbird counts from 1955 through 1964, as follows: 3 in 1955, 2 in 1961, 8 in 1962, 19 in 1963 and 17 in 1964 (2568-2572).

'Alae-'ula were apparently reported on Moloka'i only once during the 4-year period 1965 to 1968. Banko found none in a brief preliminary search on 7 October 1966 (2586), but HDFG counted 3 during the islandwide survey of 13-16 January 1967 (2574). None were apparently seen or censused in 1965 and 1968.

In 1969, HDFG and USFWS counts revealed 8 'Alae-'ula at Kalaupuhi Fishpond, and 1 at Kakahai'a-Kawela on 9 August, following which Shallenberger (1977 report) commented that with abandonment of taro farming and continued shrinkage of other suitable habitat, these birds were no longer considered part of the avifauna of Moloka'i (2605,2606,2612). Later, Walker (1977 report) stated that this species was last seen on Moloka'i in a small marshy area between Kaunakakai and Kamiloloa in 1971 (2601a). However, Shallenberger (1977 report) stated that Pekelo reported having seen the species as late as 1973, adding that given the intensity of surveys in recent years, it was probably safe to conclude that while 'Alae-'ula are undoubtedly now absent, the irregularity with which this species was seen in earlier accounts suggests that birds from O'ahu may occasionally appear (2579). Islandwide surveys by HDFG/USFWS in 1970, 1979, and 1980 failed to confirm the existence of this species on Moloka'i (2578,2580,2581,2587-2591,2594-2600,2603,2604,2607, 2608-2610,2611,2613,2614). According to Shallenberger (pers comm.) 3 pairs were introduced to Kakahai'a National Wildlife Refuge (from Haleiwa, O'ahu) in the summer of 1983, 3 being seen there a few months later (in october) (2616a,b).

Island of Maui

O. Finsch (1880) was the first naturalist to reported 'Alae-'ula at a specific location on Maui, stating that he observed them "repeatedly" in the lagoon of Kahului (?Kana'hā Pond) in June and /or July 1879 (2634). Finsch (1880) also reported seeing this species at Waike (?Waihe'e) during the same period, collecting a specimen there on 11 September 1879 (Banko 1979 report) (2643,2644). R. C. McGregor collected a specimen near Lahaina on 2 September 1900 (Banko 1979 report) (2633). Bryan (1905) stated that G. Wilder collected a specimen on Maui but mentions no place or data (2677). There seems to be no further mention of this species on Maui for more than fifty years.

Walker (1977 report) noted that small releases of 'Alae-'ula were made on Kana'hā Pond in 1959, apparently without successful re-establishment of this species there (2635a). However, Shallenberger (1977 report) stated that a farmer in the Ke'anae area reported that he had seen this bird in his fields as recently as three years ago; that he appeared to be familiar with the species by his description, and was surprised to hear that it had not been seen elsewhere on Maui for a number of years (2649). Judging from all sources examined (only a small fraction of which are cited here), there seem to be no first-hand reports of 'Alae-'ula (other than transplanted stock) on Maui since the turn century (2621-2626,2629-2632,2636-2642,2645-2648).

Island of Hawai'i

'Alae-'ula were first noted by Captain Cook's naturalists during an excursion of several days from Kealakekua Bay into the interior in January and/or February 1779 (Stresemann 1950). The next record is that of Wilson (1893) who reported that he collected a single specimen at Kīhōlo, the specimen label indicating that it was taken in November 1887 (Banko 1979 report) (2712,2713). H. Shipman, life-time resident of Puna District, told me in 1966 that this bird was present at Hā'ena when he resided there as a small boy in 1898 (Banko field notes) (2736). H. W. Henshaw collected a specimen in Hilo some miles to the west of Haena on 23 April 1898 (Banko 1979 report) (2753).

At least two attempts have been made to re-establish this species on the island of Hawai'i. L. W. Bryan told me that H. Shipman brought in four or five Gallinules (Gallinula chloropus spp.) from the mainland about 1928 to 1930, liberating them at Keaau (Banko field notes) (2737). Long-term resident of Waipi'o Valley, M. Matsunami told me that HDFG introduced about 6 'Alae-'ula to the Valley in 1953 or 1954, and that some survived four or five years but did not nest successfully (2701). Walker (1977 report), speaking for HDFG, stated that a small release of 'Alae-'ula made in Waipi'o Valley in 1959 to re-establish the species on the island, but that it was unsuccessful (2701a).

Most probably it was the 1959 re-introduction that M. Matsunami referred to. In any event, the last record of a natural population on the island of Hawai'i seems to be that of Henshaw (1902) who reported disappearance of 'Alae-'ula in localities where they were formerly abundant (2752). The many negative findings listed in the Appendix represent only a small fraction of those which might be cited to suggest the extinction of this species on the island of Hawai'i, probably not long after the turn of the century (2650-2677, 2679-2700, 2702-2711, 2714-2735, 2738-2751, 2754-2756). According to Shallenberger (pers. comm.) a single individual was seen at 'Ōpae'ula Pond, MAKALAWENA quad., in 1982 by USFWS biologist Stewart Fefer, but this sighting apparently represented only a straggler from O'ahu or Kaua'i (2711a).

CHRONOLOGICAL DISTRIBUTION OF RECORDS

Review of observation and census records of 'Alae-'ula from 1779 to the 1980's reveals that the vast majority, compiled in the 1970's and 1980's by HDFG and USFWS biologists, were negative. The chronological distribution of all records by decade is shown in Table 7.

Examination of the records of 'Alae-'ula in Table 7 shows the slow rate at which information on the population status and distribution of this species accumulated during the first century after Captain Cook's naturalists first noted their presence in 1779. By the 1870's, a total of only nine references to these birds had been made, whereas some 27 observations of this species were logged during the period 1880-1909. The 13 notes compiled during each of the 1890-1899 and 1900-1909 decades was not equaled again until the 1930's, the intervening twenty year gap being typical of Hawaiian birds in general. Records gathering increased sharply each decade beginning in the 1940's until the 1970's when they exploded with more than twenty times the number tallied in the 1960's. The vast majority of counts compiled in the 1970's and 1980's were negative findings logged on periodic surveys by government biologists.

GEOGRAPHICAL DISTRIBUTION OF RECORDS

Most of the recent records of 'Alae-'ula from the islands of Kaua'i and O'ahu are negative. Recent tallies from Moloka'i, Maui, and Hawai'i are also overwhelmingly negative but are cited nevertheless to exemplify the degrees of population depletion, if not extinction, on these three islands. Conclusions which might be drawn between recent surveys and early historical observations follow.

SUMMARY AND CONCLUSIONS

The 'Aale-'ula, or Hawaiian Common Moorhen (Gallinula chloropus sandvicensis) is a slate-grey water bird with a red bill and frontal shield. It is closely related to the Common Moorhen (or Gallinule) of North America but has a more swollen and extended frontal shield. The Hawaiian race was first described from a specimen taken on O'ahu by Streets (1877).

Observations made in the 1890's agree that 'Alae-'ula during that period were common and widespread on the five major Hawaiian Islands: Kaua'i, O'ahu, Moloka'i, Maui, and Hawai'i. Collection of more than 50 specimens indicates universal presence of this species in a wide variety of habitats at that time. By 1903 it was observed that 'Alae-'ula were becoming progressively scarcer in all districts. A decade-long gap in observations followed records logged in the 1890's.

On Kaua'i, 'Alae-'ula were observed in 1900 to be "especially abundant" in the swamps near Waimea (?Mānā Swamp), indicating their probable early status in other favorable localities on that island. An islandwide survey on Kaua'i in 1960 termed this species an "uncommon resident". Widespread surveys in the late 1970's and early 1980's revealed a relict population of some 50 to 75 birds living in the Hanalei National Wildlife Refuge and surrounding taro fields, and from 10 to 15 each at Paradise Pacifica and Kīpū Reservoirs. Fewer than 6 were also recorded on occasion at Waioli and Waipā taro fields and Wilcox Pond(s) during this recent period. One or two were seen at 10 or 12 other habitats on a regular basis, however most of the 140 or so water bird habitats regularly censused in Kaua'i appear to hold few, if any, of this species. It should be noted, however, that a large number of the inconspicuous smaller water areas suitable for 'Alae-'ula are not covered in periodic surveys, nor are the listed areas always thoroughly searched.

On O'ahu there is abundant evidence that 'Alae-'ula were common and widespread until well after the turn of the century. In 1924, this species was observed on duck ponds and in wetlands along streetcar tracks in the city of Honolulu. Breeding occurred in Ala Moana Park as late as the early 1940's. However, by the 1970's and early 1980's, periodic surveys could turn up only 100+ birds in the lotus and taro fields of Haleiwa, and from 5 to 8 at Ukos, along Hāmākua Drive, and Ka'elepulu Canal. From 2 to 3 were also seen regularly during this period at Lualualei Naval Ammunition Depot, Ki'i Pond (James Campbell NWR), Laie Prawn Farm, Honouliuli (Pearl Harbor NWR), Kahalu'u and Kawaiui. While 'Alae-'ula appear to be absent from the large majority of the nearly 100 water bird habitats regularly censused, it seems certain that persistent searching would turn up a few of these secretive birds in places where they are not now being censused or their presence anticipated.

On Moloka'i, early-day naturalists collected 'Alae-'ula in several localities, observed this species in the taro patches of Wailau, Pelekunu and Hālawā Valleys, and, as late as 1907, judged them to be "common on the island". Even in the 1930's and 1940's this species was being seen or reported at Pauwalu, Kalainaula, near Kamalo, and breeding at Kainalu Lagoon. Before the 1946 tsunami, 'Alae-'ula were even termed common in the taro patches of Hālawā Valley and in the north shore valleys. In the 1950's and early 1960's, 'Alae-'ula were observed to be "common but localized" in the brackish fishponds at 'Ō'Ō'ia, Kalupuhi and Honomuni ponds; however, from 1955 through 1964 HDFG tallied this species only 5 times in January water bird counts, a maximum of 19 being reported in any one year (1963). Dwindling numbers were reported in the late 1960's. The last individual reported on Moloka'i was in 1973. Subsequent surveys in the late 1970's and early 1980's failed to find a single one. In 1983, 3 pairs were captured at Hale'iwa, O'ahu, and introduced at Kakahai'a National Wildlife Refuge for the purpose of re-establishing this species on the island.

On Maui, this species was sighted before the turn of the century at "Waike" (?Waihe'e), observed repeatedly at Kahului and, in 1900, was collected near Lahaina. There are no other first-hand reports of this species on Maui, the attempt to re-establish them at Kanahā Pond in 1959 being unsuccessful. Official water bird surveys of likely habitats from the late 1960's to early 1980's have not turned up a single individual.

On the island of Hawai'i, early sightings and collection records of 'Alae-'ula include those made near Kealahou Bay in 1779, and at Kihole in 1887. The species was last reported from Hilo and Kaena (Puna) in 1898 during the same period they were disappearing from localities where they had formerly been abundant. Attempts to establish Gallinula chloropus chloropus at Kaena about 1928 to 1930, and 'Alae-'ula in Waipi'o Valley in the 1950's, were unsuccessful. Surveys of potential habitats in the late 1960's, 1970's and early 1980's have failed to turn up any evidence that the species exists anywhere on the island. One lone bird was reportedly seen at 'Ōpae'ula Pond, MAKALAWENA, by a USFWS biologist in the summer of 1983, but this report was not confirmed.

There are no records of 'Alae-'ula in the Leeward Hawaiian Islands or from Lāna'i. The only indication that they occurred on Ni'ihau are two statements by one observer in 1939 that this species was "almost unknown" there. Search of early literature and results of recent aerial surveys have failed to uncover any observational reports of 'Alae-'ula on Ni'ihau.

It is concluded that the only substantive populations of 'Alae-'ula today live on vanishing wetlands and tiny patches of lotus agriculture.

Table 1.

'Alae-'ula Recorded statewide by HDFG on Water Bird Surveys,
1963-1981

Year	January	Islands*	July/August	Islands*
1963	30	Ka-Oa-Mo-Ma-Ha		
1964	28	Ka-Oa-Mo-Ma-Ha		
1965	25	Ka-Oa-Ma-Ha		
1966	38	Ka-Oa-Mo-Ma-Ha		
1967	16	Ka-Oa-Mo-Ma-Ha		
1968	57	Ka-Oa-Mo-Ma-Ha		
1969	unrecorded			
1970	27	Ka-Ni-Oa-Mo-Ma-Ha		
1971	55	Ka-Oa-Mo-Ma-Ha		
1972-1976	unrecorded			
1977	140	Statewide	135	Statewide
1978	109	(Statewide)	72	Statewide
1979	234	Statewide	102	Statewide
1980	212	Statewide	100	Statewide
1981	204	Statewide		

* Legend: Ka=Kaua'i, Ni=Ni'ihau, Oa=O'ahu
Mo=Moloka'i, Ma=Maui, Ha=Hawai'i

Table 2.

'Alae-'ula Censused by HDFG on Kaua'i, 1956-1981

Year	January	July/August
1956	2	
1957	unrecorded	
1958	2	
1959	10	
1960	4	
1961	10	
1962	12	
1963	10	
1964	8	
1965	0	
1966	17	
1967	7	
1968	44	24
1969	50	unrecorded
1970	26	15
1971	unrecorded	33
1972	unrecorded	unrecorded
1973	unrecorded	unrecorded
1974	unrecorded	unrecorded
1975	unrecorded	88
1976	92	68
1977	113	115
1978	81	unrecorded
1979	79	44
1980	72	61
1981	84	

Table 3.

Relative Abundance of 'Alae-'ula in 10 Quadrangles, 1956-1982,
Island of Kaua'i

Quadrangle	Total No. Counted	Total No. Counts	Ave. No. Per Count	Total No. Habitats
MAKAHA	5	21	0	2
HAENA	9	15	1	2
HANAIEI	903	152	6	16
ANAHOLA	25	224	0	13
KEKAHA	59	132	0	13
WAIMEA CANYON	0	1	0	1
KAPAA	189	254	1	27
HANAPEPE	10	272	0	31
KOLOA	117	331	0	33
LIHUE	249	144	2	11
Totals.....	1,566	1,546	1	149

1 average computed to nearest whole number

Table 4. (Cont'd).

Quadrangle & Habitat	Serial No.'s	Census Period	Total No. Counted	Total Counts	Ave. No Counted	Ave.No. ¹	Ave.No. ¹
						Counted 1st Half Period	Counted 2nd Half Period
KOLOA							
Aepo Reservoir	1058-1067	1975-1980	0	10	0		
Aepoalua Res.	1068-1076	1975-1980	1	9	0		
Aeopoeha Res.	1077-1086	1975-1980	0	10	0		
Aepoekolu Res.	1087-1096	1975-1980	0	10	0		
Grove Farm S.B.	1097-1108	1974-1980	9	12	1	1	1
Grove Farm T.P.	1109-1117	1975-1980	0	9	0		
Halenanahu Res.	1118-1126	1975-1980	0	9	0		
Hanini Res.	1127-1136	1975-1980	5	10	1	1	0
Huinawai Res.	1137-1146	1975-1980	1	10	0		
Kaupale Res.	1147-1157	1975-1980	0	11	0		
Kipu Res. #1	1158-1169	1975-1980	0	12	0		
Kipu Res. #2	1170-1181	1975-1980	0	12	0		
Kipu Res. #3	1182-1193	1975-1980	0	12	0		
Kipu Res. 's(all 4)	1194-1198	1968-1971	45	5	9	6	12
Kipu Road Res.	1199-1211	1975-1981	0	13	0		
Koloakaapohu Res.	1212-1221	1975-1980	15	10	2	1	1
Kumano Res.	1222-1233	1975-1981	0	12	0		
Lawai Kai Est	1234-1240	1976-1980	0	7	0		
Loko Res.	1241-1249	1975-1980	1	9	0		
Lua Wai Res.	1250-1258	1976-1980	4	9	0	0	1
Mahaulepu Ponds	1259-1268	1975-1980	0	10	0		
Manuhonuhonu	1269-1279	1975-1981	0	11	0		
Mauka Res.	1280-1289	1975-1980	0	10	0		
Omao Res.	1290-1299	1976-1980	0	10	0		
Papuaa Res.	1300-1308	1975-1980	0	9	0		
Papuaa R. Res.	1309-1310	1975-1980	0	2	0		
Pia Mill Res.	1311-1320	1975-1980	3	10	0	1	0
Pinau Res.	1321-1332	1975-1980	0	12	0		
Piwai Res.	1333-1340	1975-1981	0	8	0		
Poipu Ponds	1341-1352	1968-1981	2	12	0		
Puuhi Res.	1353-1361	1975-1980	0	9	0		
Puu O Hewa	1362-1372	1975-1980	1	11	0		
Waita Res.	1373-1387	1968-1980	30	16	2	2	2

Table 4. (Cont'd).

Quadrangle & Habitat	Serial No.'s	Census Period	Total No. Counted	Total Counts	Ave. No Counted	Ave.No. ¹ Counted 1st Half Period	Ave.No. ¹ Counted 2nd Half Period
LIHUE							
Ahukini Res.	1388-1403	1970-1980	25	16	2	1	2
Aweonuinui Valley	1403-1411	1975-1980	0	8	0		
Halehaka Res.	1412-1422	1975-1981	0	11	0		
Huleia NWR*	1423-1441	1973-1982	21	23	1	1	1
Kauai Surf G.C.	1442-1451	1975-1981	0	10	0		
Kauai Surf Hotel	1452-1462	1973-1980	9	11	1		
Kipu Res. #4	1463-1475	1975-1980	0	13	0		
Lihue Pl. S.B.	1476-1503	1965-1980	176	25	7		
Menehune Fishpond	1504-1515	1968-1980	10	15	1	1	
Niumalu Flats	1516-1518	1977-1980	8	4	2	4	0
Waialaia Res.	1519-1526	1975-1980	0	8	0		

¹Average computed to nearest whole number

*Average daily use data converted to that of single census

Table 5.

'Alae-'ula Censused by HDFG on O'ahu, 1962-1981

<u>Year</u>	<u>January</u>	<u>July/August</u>
1962	0	
1963	1	
1964	3	
1965	25	
1966	21	
1967	6	
1968	13	21
1969	5	
1970	22	12
1971	12	
1972	15	
1973	1	
1974	5	
1975	10	15
1976	17	
1977	26	20
1978	28	
1979		58
1980	140	39
1981	120	

Table 6.

'Alae-'ula Censused in 92 Habitats, 1938-1982,
Island of O'ahu

Quadrangle & Habitat	Serial No.'s	Census Period	Total No. Counted	Total Counts	Ave. No Counted	Ave.No. ¹ Counted 1st Half Period	Ave.No. ¹ Counted 2nd Half Period
KAENA							
Kapalaau B/S	1659-1662	1977-1980	1	4	0		
Mokuleia Complex	1663-1672	1970-1980	13	10	1	1	1
HALEIWA							
Haleiwa Cpmplex	1674-1689	1939-1981	75	16	5	3	7
Kunehiro Lotus ³	1691-1708e	1978-1980	688	13	53	65	40
Central Fields ³	1690-1703	1978-1979	125	6	21	18	23
Wetlands	1705	1979	12	1	12		
Tsuda Hasu	1707	1979	3	1	3		
Lotus Farms	1708	1980	99	1	99		
Tantog Fields ³	1708b-f, 1709b-j	1980	72	3	24		
Helemano Res.	1710-1713	1978-1981	0	4	0		
Kiaka Bay	1715-1716	1976	5	2	3		
Kawailoa	1717	1979	0	1	0		
Ukoa	1718-1732a	1965-1980	88	17	5	4	7
Waialua S.B.	1734-1737	1979-1980	0	4	0		
WAIANAE							
Makaha Ponds	1738-1743	1975-1978	3	6	1	0	1
Waianae Valley	1744-1750	1966-1977	15	7	2	3	1
Yamaguchi	1751-1753	1976-1977	0	3	0		
SCHOFIELD BARRACKS							
Lualualei NAD	1754-1767	1973-1980	37	13	3	3	2
EWA							
Barbers Point NAS	1768-1770	1970	4	2	2		
Campbell I.P.	1771-1780	1975-1980	0	10	0		

Table 6. (Cont'd).

Quadrangle & Habitat	Serial No.'s	Census Period	Total No. Counted	Total Counts	Ave. No Counted	Ave.No. ¹ Counted 1st Half Period	Ave.No. ¹ Counted 2nd Half Period
WAIMEA							
Waialeale Res.	1781-1783	1976-1979	0	3	0		
Arboretum	1784	1978	0	1	0		
Waimea Stream	1785-1790	1977-1980	0	6	0		
KAHUKU							
J. Campbell NWR ²	1791-1796	1979-1981	7	7	1	1	1
Kii Pond	1800-1958	1939-1982	444	160	3	2	1
Punamano	1959-1988a	1973-1982	21	31	1	1	1
Air Strip	1988b-d	1976-1979	0	3	0		
Aquafarm (?Lowe ?Amorient)	1989-1990	1979-1980	0	2	0		
Kawela	1991	1979	0	1	0		
Kualoa Pond	1992-2000	1975-1980	0	9	0		
Kuilima Sewage	2001-2009	1975-1980	2	9	0		
Kuilima Swamp	2010	1977	0	1	0		
Kuilima G.C.	2011	1977	0	1	0		
Laie	2012-2013	1961-1966	3	2	2	2	1
Laie Prawn Farm	2014-2105	1979-1980	3	2	2	0	3
Lowe (Amorient) Aquafarm	2016-2017	1979-1980	0	2	0		
Punahoolopa	2018-2025	1977-1980	13	8	2	3	1
HAUULA							
Ku Tree	2026-2029	1979-1981	0	4	0		
Opaeula	2031	1981	0	1	0		
Wahiawa Res.	2033-2035	1979	0	2	0		
KAHANA							
Huilua Fishpond	2036-2049	1955-1980	12	14	1		
Kaawa Valley	2051	1977	1	2	1		
Kahana Stream	2052-2065	1952-1977	32	13	3		
Punaluu F.F.	2066	1977	0	1	0		

Table 6. (Cont'd).

Quadrangle & Habitat	Serial No.'s	Census Period	Total No. Counted	Total Counts	Ave. No Counted	Ave.No. ¹ Counted 1st Half Period	Ave.No. ¹ Counted 2nd Half Period
WAIPAHAU							
Apokaa	2067-2077	1974-1980	8	11	1	1	0
Leeward College	2078-2079	1975	0	2	0		
Loko Eo	2080	1976	0	1	0		
Pearl Harbor NWR	2080a-d	1980-1981	8	4	2	2	2
Waiawa Unit	2081-2130g	1975-1982	0	58	0		
Sumida Farm	2131-2136	1961-1976	4	4	1	2	0
T.M. Golf Course	2137	1976	0	1	0		
Waikele	2138-2146	1975-1980	0	9	0		
Waipahu	2147-2158	1944-1980	4	12	0	1	0
Waipio S.B.	2159-2164	1971-1980	0	6	0		
Waipio Sewage	2165-2169	1975-1980	0	5	0		
Walker's Bay	2170-2179	1975-1980	0	10	0		
KANEEOHE							
Heeia	2180-2188	1976-1980	15	9	2	4	0
Kahaluu	2190-2191	1976-1977	2	2	1	0	2
MOKAPU							
Holiday Mart	2193	1976	0	1	0		
Kaelepulu Pond	2194-2217	1938-1979	32	23	1	2	1
Kaelepulu F.C.	2218-2221	1977-1979	4	4	1	0	2
Kaelepulu Canal	2222-2228	1951-1977	37	7	5	4	6
Wigwam	2229-2230	1970-1975	1	2	1	1	0
Kaneohe MCAS	2231-2238	1947-1877	9	8	1	2	0
Nuupia	2239-2244	1977-1980	0	6	0		
Sewage Lagoon	2245-2248	1978-1980	0	4	0		
Kawainui	2249-2296	1947-1980	116	42	3	3	2
Kawainui Berm	2297-2299	1978-1980	2	3	1		
Hamakua Ditch	2300-2303	1978-1980	39	4	10	12	8
Hamakua Drive	2304-2317	1976-1980	92	14	7	7	6
Lanikai	2318-2319	1977	3	2	2		
Olomana	2320-2321	1968-1979	5	2	3		

Table 6. (Cont'd).

Quadrangle & Habitat	Serial No.'s	Census Period	Total No. Counted	Total Counts	Ave. No Counted	Ave.No. ¹ Counted 1st Half Period	Ave.No. ¹ Counted 2nd Half Period
PUULOLOA							
Honouliuli P.P.	2322-2333	1974-1980	2	11	0		
Kamehameha	2334-2343	1975-1980	5	11	0		
Honouliuli Unit ²	2344-2410	1975-1982	103	74	1	1	2
Puuloa	2411-2412	1956-1957	1	2	1		
Waipio	2413-2420	1967-1981	5	8	1	1	1
HONOLULU							
Damon Pond	2422-2429	1952-1960	8	7	1	2	0
Mid-Pac. C.C.	2434	1950	2	1	2		
Moanalua	2435-2445	1943-1953	23	9	3	3	2
Nuuanu Res. (all 4)	2446-2467	1938-1977	38	18	2	3	1
Nuuanu Res. 1	2468-2469	1966, 1979	0	2	0		
Nuuanu Res. 2	2471-2483	1966-1981	17	12	1	3	0
Nuuanu Res. 3	2484-2495	1940-1980	6	9	1	1	0
Nuuanu Res. 4	2496-2502	1966-1980	0	7	0		
Kapiolani Blvd.	2503	1943	2	1	2		
Keehei Lagoon	2504-2513	1975-1980	0	10	0		
Salt Lake	2514-2525	1958-1980	2	12	0		
KOKO HEAD							
Bellows AFB	2526-2549	1947-1981	35	24	1	2	1
Kuapa	2550-2553	1961, 1976	9	4	2	2	3
Paiko Lagoon	2554-2563	1975-1980	0	10	0		
Waimanalo	2565-2567	1970	13	3	4		

¹Average computed to nearest whole number

²Average daily use data converted to that of single census

³Data do not include counts by Nagata which may overlap (see App. 1689a-s)

Table 7.

Distribution by Decade of 2,906 Records of 'Alae-'ula
in the Hawaiian Island, from 1779 to 1982

1700's - 1	1840's - 2	1910's - 0
1780's - 0	1850's - 0	1920's - 3
1790's - 0	1860's - 0	1930's - 13
1800's - 0	1870's - 5	1940's - 36
1810's - 0	1880's - 1	1950's - 63
1820's - 0	1890's - 13	1960's - 194
1830's - 1	1900's - 13	1970's - 2,044
		1980's - 467

APPENDIX

1. Observations, reports, and specimen records are organized by island group, island, district, and/or quadrangle map. Order of listing, names and locations of district and quadrangle boundaries are explained and illustrated in CPSU/UH Avian History Report 4: Introduction to Part I, Population Histories--Species Accounts.
2. Acronyms composed of the first three letters of the author's (or senior author's) last name, the initial letter of the first name, and last two digits of the year of publication represent sources found in the bibliography under References Cited. For example, BRYWOL = Bryan, W. A., and Alvin Seale. 1901. Notes on the birds of Kauai. Bishop Museum Occ. Papers. 1(3):129-137. In cases where it is necessary to distinguish between two or more articles published by an author in any given year, letters are added to the acronym in alphabetical sequence, e.g., BRYWOLa = Bryan, W. A. 1901 A key to the birds of the Hawaiian group. Bishop Museum Press. 76 pp. Parenthetical numbers such as (5), represent references listed under Unpublished Sources Cited in the bibliography.
3. Place-names are cited in original form.
4. Parenthetical information is qualified.

Relative Abundance/locality	Date	Source
Southeast Hawaiian Islands		
ISLANDS-WIDE INFERENCE		
1 Banko: 1 specimen taken during visit of French vessel <u>Venus</u> / Hawaiian Islands	1839	(10)
2 frequents swamps, ponds, streams and kalo (taro) patches/ Habitat whole group	(1879)	DOLS79
3 common / swampy taro patches throughout Hawaii	(1887-1888)	WILS93
4 a common bird / on most of the larger islands	1891	MUNG44
5 distributed all over the Archipelago...Palmer sent me examples from Kaua'i, Molokai and O'ahu	(1891-1893)	ROTW00
6 generally distributed over (all) the islands in suitable localities, often frequenting the rice fields and taro patches...in the lowlands...it does not appear to follow the streams into the mountains	(1892-1896)	PERR03
7 slaughtered...usually shot and thrown away...quite exterminated / in many localities	(1903)	HENH03
8 becoming scarcer and scarcer / in all districts	(1903)	HENH03
9 especially precarious / O'ahu, Mau'i, Moloka'i	(1946-1947)	SCHC49
10 reported rare / Mau'i, Moloka'i, O'ahu	1947	SHAR77
11 HDFG: 30 / Kaua'i, O'ahu, Moloka'i, Maui Hawai'i	14-18 Jan. 1963	(1)
12 HDFG: 28 / Kaua'i, O'ahu, Moloka'i, Maui Hawai'i	15 Jan. 1964	(1)
13 HDFG: 25 / Kaua'i, O'ahu, Maui Hawai'i	14 Jan. 1965	(1)
14 HDFG: 38 / Kaua'i, O'ahu, Moloka'i, Maui, Hawai'i	13-14 Jan. 1966	(1)
15 HDFG: 16 / Kaua'i, O'ahu, Moloka'i, Maui, Hawai'i	13-16 Jan. 1967	(1)
16 HDFG: 57 / Kaua'i, O'ahu, Moloka'i, Maui, Hawai'i	8-10 Jan. 1968	(1)
16aHDFG: officially classed as endangered	(1969)	(7)
17 HDFG: 27 / Kaua'i, Ni'ihau, O'ahu, Moloka'i, Maui Hawai'i	7 Aug. 1970	(22)
18 HDFG: 55 / Kaua'i, O'ahu, Moloka'i, Maui, Hawai'i	13-14 Jan. 1971	(1)
19 HDFG: Objectives...of Statewide summer and winter surveys is to determine abundance and distribution of population, and to record environmental factors affecting numbers and distribution...and to measure effects of habitat improvement projects at Kanaha Pond, Maui, and Paiko Lagoon, O'ahu... procedures...include...one-day comprehensive air and/or	1 July 1975- 30 June 1976	(2)

ground coverage of all significant habitats by HDFG, USFWS and other qualified cooperations...following of prescribed routes by experienced observers using binoculars and telescopes...and notation of environmental conditions affecting efficiency and results obtained

20	HDFG: 135 / Statewide	summer 1977	(5)
21	HDFG: 140 / Statewide	winter 1977	(5)
22	Shallenberger:...appear to be far more sedentary than coots or stilt, and do not seem to follow an annual migration pattern. In the draft HWRP...the gallinule population on Kaua'i was estimated at ± 500 , but HDFG/USFWS count records to date do not reflect real population size due to the wide distribution and secretive nature of this species...It is clear, however, that Kaua'i is by far the most important stronghold.../ Statewide	(1977)	(5)
23	largest recorded population (Statewide) is now on Kaua'i, although count records of this inconspicuous species probably bear little relationship to the actual State population	(1977)	SHAR77
23a	HDFG/USFWS: ...recovery team estimates present statewide population to be 750 (500 on Kaua'i, 250 on O'ahu)... primary objective of Recovery Plan is to provide and maintain population of 2,000	(1977)	(46)
24	current estimate of 750 is largely speculative and it is clear that better census methods are required to evaluate population level (Statewide)	(1977)	SHAR77
25	apparently now absent / Maui, Moloka'i, Hawai'i	(1977)	SHAR77
26	HDFG: gallinule declined to 109, down 31 birds in 1978 over 1977 winter counts...dry spring-summer in 1977 and dispersal to areas not censused are possible contributing factors accounting for difference / Statewide	1 July 1977- 30 June 1978	(2)
27	HDFG: comprehensive semi-annual censuses are only useful as comparative indices to total population and distributional patterns / Statewide	1 July 1977- 30 June 1978	(2)
28	HDFG: 72 / Statewide	summer 1978	(5)
29	HDFG: 109 / Statewide	winter 1978	(5)
30	HDFG: 102 / Statewide	summer 1979	(5)
31	HDFG: 234 / Statewide	winter 1979	(5)
32	HDFG: Statewide counts during summer censuses have been more or less stable for the last few years prior to 1980	1 July 1979- 30 June 1980	(5)

...however censusing gallinules during the summer is difficult due to the dense vegetation in lotus and taro fields where they are found...winter counts appear to be up but this is probably because of more intensive surveys in the lotus fields of O'ahu since 1979

- | | | |
|--|----------------------|--------|
| 33 HDFG: 100 / Statewide | 31 July, 1 Aug. 1980 | (5) |
| 34 HDFG: 212 / Statewide | winter 1980 | (5) |
| 35 HDFG: 204 / Statewide | 12-14 Jan. 1981 | (5) |
| 35a 750/ Statewide (Kaua'i and O'ahu) | (1982) | ANON82 |
| 35b Shallenberger: generally nest in areas where there is standing water but where it is normally less than 24 inches deep...emergent aquatic vegetation is folded over into a platform nest...nest may be placed on ground where the vegetation is too sparse...most nests have tall cover nearby...stem density and height are important...nesting has been recorded year-round but most activity appears to be from March through August...nesting appears to be keyed to water and vegetation growth ... | (1977) | (3) |
| 35c clutch size can be as high as 13 but an average of 5.6 was recorded for 64 clutches...incubation period is probably about 22 days...chicks swim away from the nest shortly after hatching but remain close to and dependent on the parents for several weeks...renewing and multiple broods during a season have been observed.... | | (53) |

BYRG81

Island of Kaua'i

ISLANDWIDE INFERENCE

- | | | |
|-------------|-----------------|-----|
| 36 HDFG: 2 | 4-10 Jan. 1956 | (1) |
| 37 HDFG: 2 | 14-17 Jan. 1958 | (1) |
| 38 HDFG: 10 | 7-16 Jan. 1959 | (1) |
| 39 HDFG: 4 | 4-8 Jan. 1960 | (1) |
| 40 HDFG: 10 | 10-13 Jan. 1961 | (1) |
| 41 HDFG: 12 | 15-17 Jan. 1962 | (1) |
| 42 HDFG: 10 | 14-18 Jan. 1963 | (1) |
| 43 HDFG: 8 | 15 Jan. 1964 | (1) |
| 44 HDFG: 0 | 14 Jan. 1965 | (1) |
| 45 HDFG: 17 | 13-14 Jan. 1966 | (1) |
| 46 HDFG: 7 | 13-16 Jan. 1967 | (1) |
| 47 HDFG: 44 | 8-10 Jan. 1968 | (1) |
| 48 HDFG: 24 | 24 July 1968 | (1) |

49 HDFG: 50	13-14 Jan. 1969	(1)
50 officially classed as endangered	(1969)	(7)
51 HDFG: 26	13-15 Jan. 1970	(1)
52 HDFG: 15	7 Aug. 1970	(22)
53 HDFG: 33	27 July 1971	(1)
54 HDFG: 88	Aug. 1975	(2)
55 HDFG: 92	15 Jan. 1976	(2)
56 HDFG: Winter populations on Kaua'i (92) were found to be similar to the summer census totals (88). This stability should be expected, since they are sedentary, and remain resident to their respective habitats for long periods of time...broods were noted throughout most of the year but were more prevalent during the summer / (Islandwide)	1 July 1975- 30 June 1976	(2) (2)
57 HDFG: 68	Aug. 1976	(2)
58 HDFG: 113	Jan. 1977	(2)
59 HDFG: severe winter drought...record numbers censused / (Islandwide)	1 July 1976- 30 June 1977	(2) (2)
60 HDFG: 115	27,28 July 1977	(2)
61 HDFG :81	12,13 Jan. 1978	(2)
62 HDFG: Gallinules apparently less severely affected by severe drought conditions in 1977 than stilt, coot or koloa ...apparent decrease in numbers between 1977 winter and summer counts was attributed to greater dispersal of birds into habitats of dense cover where they were less visible, or to low productivity as a result of the drought ...census methods were inadequate to produce an effective measure of their population trends / (Islandwide)	1 July 1977- 30 June 1978	(2) (2)
63 HDFG: 79	15,16,20 Jan. 1979	(5)
64 HDFG: 44	1,,2 Aug. 1979	(5)
65 HDFG: 72	14-16 Jan. 1980	(5)
66 HDFG: 61	31 July, 1 Aug 1980	(5)
67 HDFG: 84	12-14 Jan. 1981	(5)
UNSPECIFIED LOCATION(S)		
68 especially abundant / swamps about Waimea	4 May (1900)	BRYW01
69 Miller: unsuccessful hunts two mornings and evenings / marsh and pond back of the mill (Lihue?)	2 April 1903	(26)
70 Gooddale: moderate numbers / reservoirs near Kipu	(June-Aug. 1960)	RICF64f
71 2 seen / in the small slough at Kipu Kai	(June-Aug. 1960)	RICF64f

72 uncommon resident / on bodies of fresh water near the coast	(June-Aug. 1960)	RICF64f
73 one seen / near Lihue	Feb. 1962	CURH63
74 a few / on lagoons near Koloa	2 Jan. 1968	ORER68
75 HDFG: 1 / Kealia (?)	8-10 Jan. 1968	(1)
76 HDFG: 2 / Kapana (?)	8 Aug. 1973	(1)
77 2, Christmas Count / Pacific Tropical Botanical Garden (locality?)	17 Dec. 1977	SEAW78a
78 HDFG: 0 / C. Brewer Prawn Farm (locality?)	27,28,30 July 1978	(5)
78a8, Christmas Count / Pacific Tropical Botanical Garden (locality?)	(Dec. 1980)	SEAW81

MULTIQUADRANGLE/LOCALITY

79 Banko: up to six...believed to comprise resident breeding population (HDFG) / Wailua pasture...along Opaekaa Stream and north side of Wailua River between Opaekaa Falls and east coast highway...estimated 85 acres	(1966)	(17)
80 1, Christmas Count (1100-1500 hours) / Kapaa to Kilauea, including passable back roads	27 Dec. 1970	SEAW71
81 2, Christmas Count (0730-1600 hours) / Omao, Koloa, Poipu and beach area	28 Dec. 1970	SEAW71
82 4, Christmas Count (0730-1700 hours) / main belt road from Wailua to Kokee...Mana and Wailua rice and taro beds between Houselots and Homesteads Road	29 Dec. 1970	SEAW71
83 1, Christmas Count / streams, holding ponds and irrigation ditches...within a 15 mile diameter circle, center a bit east of junction of Kokee Road from Waimea and Kekaha	27 Dec. 1971	SEAW72
84 18, Christmas Count / streams, holding ponds and irrigation ditches...within a 15 mile diameter circle, center north of Belt Road between Puhi and Koloa exists, to include south of Wailua middlefork to Kalaheo and Hanapepe Valley	27 Dec. 1971	SEAW72
85 18, Christmas Count / Lihue area	Dec. 1971	SEAW79
86 17, Christmas Count / Lihue area	Dec. 1972	SEAW79
87 9, Christmas Count / Lihue area	16 Dec. 1973	HARA74a
88 50, Christmas Count / Kapaa area, center foothill junction of Makaleha and Anahola Mountains	14 Dec. 1974	SEAW75
89 23, Christmas Count / Lihue area, center north of belt road between Puhi and Koloa exists to include south of Wailua middle fork to Kalaheo and Hanapepe Valley	15 Dec. 1974	SEAW75

90	23, Christmas Count / Lihue area	Dec. 1974	SEAW79
91	21, Christmas Count / Lihue area	Dec. 1974	SEAW79
92	16, Christmas Count / Lihue area	Dec. 1974	SEAW79
93	8, Christmas Count / Kapaa area	Dec. (18?) 1977	KAWD78
93a4,	Christmas Count / Nawiliwili Harbor, Menehune Fishpond to Knudsen Gap Road, oceanside of Koloa Sugar Mill	17 Dec. 1977	SEAW78a
93b25,	Christmas Count / Oceanside of Belt Road from Wailua River to Kalapaki Bay, Paradise Pacifica, holding ponds west of Lihue to Wailua Falls, ponds west of Waita Reservoir	17 Dec. 1977	SEAW78a
94	31, Christmas Count / Lihue area	Dec. 1974	SEAW79
95	15, Christmas Count / Lihue: south side of Lihue including Kauai Surf Golf Course to Knudsen Gap Road and Waita Reservoir	16 Dec. 1978	SEAW79
96	17, Christmas Count / Lihue: Wailua River to north side of Lihue west to Wailua Falls	16 Dec. 1978	SEAW79
97	7, Christmas Count / Pacific Tropical Gardens, and Lawai Valley	16 Dec. 1978	SEAW79
98	28, Christmas Count / Lihue area, count center was foothill junction of Makaleha and Anahola mountains (as in 1977)	24 Dec. 1978	KAWD79
99	8, Christmas Count / Pacific Tropical Botanical Gardens and Lawai Valley	15 Dec. 1979	ANON80b
100	2, Christmas Count / Omao Road, Koloa town and Poipu	15 Dec. 1979	ANON80b
101	14, Christmas Count / Lihue: south side of Lihue to Knudsen Gap Road, including Waita Reservoir	15 Dec. 1979	ANON80b
102	30, Christmas Count / area of undescribed parameters near Kapaa	22 Dec. 1979	ANON80a
103	20, Christmas Count / Lihue: Wailua River to north side of Lihue and west to Wailua Falls	15 Dec. 1979	ANON80b
104	20, Christmas Count / Wailua River to north side of Lihue, including airport road and holding ponds west to Lihue	(Dec. 1980)	SEAW81
105	17, Christmas Count / Lihue: south side of Lihue to Knudsen Gap Road, including Waita Reservoir, Kipu Ranch	(Dec. 1980)	SEAW81

QUADRANGLE/LOCALITY

MAKAHA POINT

Kolo Reservoir

106 HDFG: 4	1 Aug. 1975	(1)
107 HDFG: 0	15 Jan. 1976	(2)
108 HDFG: 0	4,5 Aug. 1976	(2)
109 HDFG: 1	13 Jan. 1977	(2)
110 HDFG: 0	27,28 July 1977	(2)
111 HDFG: 0	12,13 Jan. 1978	(2)
112 HDFG: 0	27,28,30 July 1978	(5)
113 HDFG: 0	15,16,20 Jan. 1979	(5)
114 HDFG: 0	1,2 Aug. 1979	(5)
115 HDFG: 0	14-16 Jan. 1980	(5)
116 HDFG: 0	12 Jan. 1981	(5)

Saki Mana Reservoir

117 HDFG: 0	1 Aug. 1975	(1)
118 HDFG: 0	15 Jan. 1976	(2)
119 HDFG: 0	4,5 Aug. 1976	(2)
120 HDFG: 0	13 Jan. 1977	(2)
121 HDFG: 0	27,28 July 1977	(2)
122 HDFG: 0	12,13 Jan. 1978	(2)
123 HDFG: 0	15,16,20 Jan. 1979	(5)
124 HDFG: 0	1,2 Aug. 1979	(5)
125 HDFG: 0	14-16 Jan. 1980	(5)
126aHDFG: 0	31 July,1 Aug. 1980	(5)

HAENA

Haena Pond

126b3 seen	9 May 1957	CURA58
127 Shallenberger: (none) observed during two visits (20 May, 21 July 1977)...unaware of any records...marsh is badly encroached by grasses...only a small (10'x20') oval of open water (was present) / Haena Marsh	(1977)	(3)

Wainiha Taro / River Fields

128 HDFG: 0	1 Aug. 1975	(1)
129 HDFG: 0	15 Jan. 1976	(2)
130 HDFG: 0	4,5 Aug. 1976	(2)
131 HDFG: 0	13 Jan. 1977	(2)
132 HDFG: 0	27,28 July 1977	(2)
133 Shallenberger: Five birds were counted (in taro fields) on 20 May but none on 22 July...One farmer reported seeing chicks earlier in the year.../ Wainiha Valley	(1977)	(3)
134 HDFG: 0	12,13 Jan. 1978	(2)
135 HDFG: 0	27,28,30 July 1978	(5)
136 HDFG: 1	15,16,20 Jan. 1979	(5)
137 HDFG: 0	1,2 Aug. 1979	(5)
138 HDFG: 0	14-16 Jan. 1980	(5)

HANAIEI

Hanalei Valley / Fields

139 HDFG: 2	4-10 Jan. 1956	(1)
140 HDFG: 1	Jnue-Aug. 1960	(1)
141 1 seen (River)	19-22 Mar. 1964	SCHP65
142 HDFG: 4	8-10 Jan. 1968	(1)
143 HDFG: 2	13,14 Jan. 1969	(1)
144 HDFG: 3	13-15 Jan. 1970	(1)
145 1 seen	18 Aug. 1971	HANR75
146 HDFG: 9	8 Aug. 1973	(1)
147 15 censused	29 Dec. 1973	HARA74a
148 Shallenberger:...only found two in our brief survey of lower Hanalei taro fields (19,31 May and 18,21 July 1977) but as many as five have been counted in these fields during recent HDFG/USFWS surveys...likely that actual numbers are considerably higher than the count data indicate... found to be common and widely distributed in the hau forest along the river where nine were counted / Hanalei Valley	(1977)	(3)

Lower Hanalei River

149 HDFG: 0	1 Aug. 1975	(2)
150 HDFG: 0	15 Jan. 1976	(2)
151 HDFG: 0	4,5 Aug. 1976	(2)
152 HDFG: 0	13 Jan. 1977	(2)
153 HDFG: 0	27,28 July 1977	(2)
154 HDFG: 3	12,13 Jan. 1978	(2)
155 HDFG: 0	27,28,30 July 1978	(5)
156 HDFG: 0	15,16,20 Jan. 1979	(5)
157 HDFG: 0	1,2 Aug. 1979	(5)
158 HDFG: 0	31 July, 1 Aug. 1980	(50)
159 HDFG: 0	12 Jan. 1981	(5)

Hanalei Taro Fields (154 acres in 1964)

160 HDFG: up tp 60 have been counted in 21 counts	(1966)	(11)
		(17)
161 HDFG: 3	7 Aug. 1970	(22)
162 HDFG: 13	2 Aug. 1974	(1)

Hanalei Post Office Taro Fields

163 HDFG: 4	1 Aug. 1975	(1)
164 HDFG: 1	15 Jan. 1976	(2)
165 HDFG: 1	4,5 Aug. 1976	(2)
166 HDFG: 1	13 Jan. 1977	(2)
167 HDFG: 2	27,28 July 1977	(2)
168 HDFG: 5	12,13 Jan. 1978	(2)
169 HDFG: 5	27,28,30 July 1978	(5)
170 HDFG: 6	15,16,20 Jan. 1979	(5)
171 HDFG: 1	1,2 Aug. 1979	(5)
172 HDFG: 2	14-16 Jan. 1980	(5)

Hanalei Trader Taro

173 HDFG: 5	1 Aug. 1975	(1)
174 HDFG: 0	15 Jan. 1976	(2)
175 HDFG: 0	4,5 Aug. 1976	(2)
176 HDFG: 7	13 Jan. 1977	(2)

177 HDFG: 3	27,28 July 1977	(2)
178 HDFG: 0	27,28,30 July 1978	(5)
179 HDFG: 2	15,16,20 Jan. 1979	(5)
180 HDFG: 0	1,2 Aug. 1979	(5)
181 HDFG: 2	14-16 Jan. 1980	(5)

Hanalei National Wildlife Refuge

182 71...peak observed during the period	4 Oct. 1976	ZEIF77
183 easily observed	19 Mar.1977	WATJ77
184 65...high count	28 Apr.1977	MULM77
185 Shallenberger:...less conspicuous, but occasionally more abundant, than coots...Gallinule do not leave the refuge with coots and stilt each year but instead find suitable nesting habitat within the taro fields. Recent count data (by USFWS biologist) reflect a striking increase in population under refuge management...	(1977)	(3)
186 USFWS; 48, ave. daily use	Oct.-Dec. 1979	(13)
187 USFWS; 25, ave. daily use	Jan.-Mar. 1980	(13)
188 USFWS; 21, ave. daily use	Apr.-June 1980	(13)
189 USFWS; 11, ave. daily use	July-Sep.1980	(13)
190 USFWS; 16, ave. daily use	Oct.-Dec. 1980	(13)
190a64 nests ave. 5.6 eggs/clutch	1975-1980	BYRG81
190b61 nests were 75% successful	1975-1980	BYRG81
190c75% of 53 nests hatched	1975-1980	BYRG81
190d64% of 55 broods fledged	1975-1980	BYRG81
190e13 Class I broods ave. 43 chicks	1975-1979	BYRG81
190f40 Class II and III broods ave. 2.8 chicks	1975-1979	BYRG81
190g55 broods fledged ave. of 2.3 chicks	1975-1979	BYRG81
191 USFWS: 20, ave. daily use	Jan.-Mar. 1981	(13)
192 USFWS: 13, ave. daily use	Apr.-June 1981	(13)
193 USFWS: 14, ave. daily use	July-Sep. 1981	(13)
193aUSFWS: not censused	15 Nov.-15 Dec.1981	(13)
193bUSFWS: 22, ave. daily use	16 Dec. 1981	(13)
	15 Jan. 1982	
193cUSFWS: 20, ave. daily use	16 Feb.-31 Mar. 1982	(13)
193dUSFWS: 45, ave. daily use	Apr. 1982	(13)
193eUSFWS: 52, ave. daily use	May. 1982	(13)
193fUSFWS: 32, ave. daily use	June 1982	(13)

Hanalei National Wildlife Refuge
Auto / Foot Survey

194 HDFG: 9
195 HDFG: 18
196 HDFG: 24
197 HDFG: 30
198 HDFG: 26
199 HDFG: 19
200 HDFG: 1
201 HDFG: 4
202 HDFG: 0
203 HDFG: 1

1 Aug. 1975 (1)
15 Jan. 1976 (2)
4,5 Aug. 1976 (2)
13 Jan. 1977 (2)
27,28 July 1977 (2)
12,13 Jan. 1978 (2)
27,28,30 July 1978 (5)
15,16,20 Jan. 1979 (5)
1,2 Aug. 1979 (5)
14-16 Jan. 1980 (5)

Hanalei National Wildlife Refuge
Lookout Survey

204 1 seen
205 HDFG: 18
206 HDFG: 26
207 HDFG: 20
208 HDFG: 36
209 HDFG: 30
210 HDFG: 0
211 HDFG: 14
212 HDFG: 35
213 HDFG: 7
214 HDFG: 19

4 Sep. 1961 BOWJ62
1 Aug. 1975 (1)
15 Jan. 1976 (2)
4,5 Aug. 1976 (2)
13 Jan. 1977 (2)
27,28 July 1977 (2)
12,13 Jan. 1978 (2)
27,28,30 July 1978 (5)
15,16,20 Jan. 1979 (5)
1,2 Aug. 1979 (5)
14-16 Jan. 1980 (5)

Kalihiwai River Estuary

215 HDFG: 0
216 HDFG: 1
217 HDFG: 0
218 HDFG: 0
219 HDFG: 0
220 HDFG: 0
221 HDFG: 0
222 HDFG: 1
223 HDFG: 0

1 Aug. 1975 (1)
15 Jan. 1976 (2)
4,5 Aug. 1976 (2)
13 Jan. 1977 (2)
27,28 July 1977 (2)
12,13 Jan. 1978 (2)
27,28,30 July 1978 (5)
15,16,20 Jan. 1979 (5)
1,2 Aug. 1979 (5)

224 HDFG: 0
 225 HDFG: 0
 226 HDFG: 0

14-16 Jan. 1980 (5)
 31 July, 1 Aug. 1980 (5)
 12 Jan. 1981 (5)

Kalihiwai Reservoir

227 HDFG: 0
 228 HDFG: 0
 229 HDFG: 0
 230 HDFG: 0
 231 HDFG: 0
 232 HDFG: 0
 233 HDFG: 0
 234 HDFG: 0
 235 HDFG: 0
 236 HDFG: 0

1 Aug. 1975 (1)
 15 Jan. 1976 (2)
 4,5 Aug. 1976 (2)
 13 Jan. 1977 (2)
 27,28 July 1977 (2)
 12,13 Jan. 1978 (2)
 27,28,30 July 1978 (5)
 15,16,20 Jan. 1979 (5)
 1,2 Aug. 1979 (5)
 14-16 Jan. 1980 (5)

Kalihiwai Prawn Farm

237 HDFG: 0

12,13 Jan. 1978 (2)

Lumahai River / Valley

238 HDFG: 0
 239 HDFG: 0
 240 HDFG: 0
 241 HDFG: 0
 242 HDFG: 0

243 Shallenberger: not observed on either highway or on-water surveys (20 May, 21 July)...but the species appears (one bird each count) on five monthly USFWS counts in recent years. Probably several birds were missed on these roadside counts...relatively deep water and limited growth of floating-leaved vegetation reduces the value of this habitat for gallinule

1 Aug. 1975 (1)
 15 Jan. 1976 (2)
 4,5 Aug. 1976 (2)
 13 Jan. 1977 (2)
 27,28 July 1977 (2)
 (1977) (3)

244 HDFG: 0
 245 HDFG: 0
 246 HDFG: 0
 247 HDFG: 0
 248 HDFG: 0

12,13 Jan. 1978 (2)
 27,28,30 July 1978 (5)
 15,16,20 Jan. 1979 (5)
 1,2 Aug. 1979 (5)
 14-16 Jan. 1980 (5)

Princeville Golf Course Ponds

249 HDFG: 0
 250 HDFG: 0
 251 HDFG: 0
 252 HDFG: 0
 253 HDFG: 0
 254 HDFG: 1
 255 HDFG: 0
 256 HDFG: 0
 257 HDFG: 0
 258 HDFG: 0

1 Aug. 1975 (10)
 15 Jan. 1976 (2)
 4,5 Aug. 1976 (2)
 13 Jan. 1977 (2)
 27,28 July 1977 (2)
 12,13 Jan. 1978 (2)
 27,28,30 July 1978 (5)
 15,16,20 Jan. 1979 (5)
 1,2 Aug. 1979 (5)
 14-16 Jan. 1980 (5)

Waioli Taro Fields

259 HDFG: 0
 260 HDFG: 1
 261 HDFG: 2
 262 HDFG: 3
 263 HDFG: 13
 264 HDFG: 16
 265 HDFG: 2
 266 HDFG: 5
 267 HDFG: 1
 268 HDFG: 1

1 Aug. 1975 (1)
 15 Jan. 1976 (2)
 4,5 Aug. 1976 (2)
 13 Jan. 1977 (2)
 27,28 July 1977 (2)
 12,13 Jan. 1978 (2)
 27,28,30 July 1978 (5)
 15,16,20 Jan. 1979 (5)
 1,2 Aug. 1979 (5)
 14-16 Jan. 1980 (5)

Waipa Taro Fields

269 HDFG: 6
 270 HDFG: 6
 271 HDFG: 1
 272 HDFG: 1
 273 HDFG: 0
 274 HDFG: 2
 275 HDFG: 2
 276 HDFG: 1
 277 HDFG: 0
 278 HDFG: 0

1 Aug. 1975 (1)
 15 Jan. 1976 (2)
 4,5 Aug. 1976 (2)
 13 Jan. 1977 (2)
 27,28 July 1977 (2)
 12,13 Jan. 1978 (2)
 27,28,30 July 1978 (5)
 15,16,20 Jan. 1979 (5)
 1,2 Aug. 1979 (5)
 14-16 Jan. 1980 (5)

Wilcox Estate Ponds

279 HDFG: 6	1 Aug. 1975	(1)
280 HDFG: 10	15 Jan. 1976	(2)
281 HDFG: 3	4,5 Aug. 1976	(2)
282 HDFG: 8	13 Jan. 1977	(2)
283 HDFG: 6	27,28 July 1977	(2)
284 Shallenberger: between 2-7 observed on all three visits (21 May, 1 June, and 22 July)...pairing evident but brief examination revealed no nesting or evidence of earlier nesting ...A more thorough search earlier in the year would provide a more reliable foundation for evaluating use of the area for nesting	(1977)	(3)
285 HDFG: 2	12,13 Jan. 1978	(2)
286 HDFG: 7	27,28,30 July 1978	(5)
287 HDFG: 4	15,16,20 Jan. 1979	(5)
288 HDFG: 1	1,2 Aug. 1979	(5)
289 HDFG: 7	14-16 Jan. 1980	(5)

ANAHOLA

Anahola Estuary

290 HDFG: 0	1 Aug. 1975	(1)
291 HDFG: 1	15 Jan. 1976	(2)
292 HDFG: 0	4,5 Aug. 1976	(2)
293 HDFG: 1	13 Jan. 1977	(2)
294 HDFG: 0	27,28 July 1977	(2)
295 Shallenberger: one observed in the lower area in May (Anahola Valley)	(1977)	(3)
296 HDFG: 0	12,13 Jan. 1978	(2)
297 HDFG: 0	15,16,20 Jan. 1979	(5)
298 HDFG: 0	14-16 Jan. 1980	(5)
299 HDFG: 0	31 July, 1 Aug. 1980	(5)
300 HDFG: 0	12 Jan. 1981	(5)

Kaloko Reservoir

301 HDFG: 0	1 Aug. 1975	(1)
302 HDFG: 0	15 Jan. 1976	(2)
303 HDFG: 0	4,5 Aug. 1976	(2)

304 HDFG: 0
 305 HDFG: 0
 306 HDFG: 0
 307 HDFG: 0
 308 HDFG: 0
 309 HDFG: 0
 310 HDFG: 0

13 Jan. 1977 (2)
 27,28 July 1977 (2)
 12,13 Jan. 1978 (2)
 27,28,30 July 1978 (5)
 15,16,20 Jan. 1979 (5)
 1,2 Aug. 1979 (5)
 14-16 Jan. 1980 (5)

Kaloko Prawn Farm

311 HDFG: 0

12,13 Jan. 1978 (2)

Kamoku Pastures

312 HDFG: 0
 313 HDFG: 0
 314 HDFG: 0
 315 HDFG: 0
 316 HDFG: 0
 317 HDFG: 0
 318 HDFG: 0
 319 HDFG: 0
 320 HDFG: 0
 321 HDFG: 0

1 Aug. 1975 (1)
 15 Jan. 1976 (2)
 4,5 Aug. 1976 (2)
 13 Jan. 1977 (2)
 27,28 July 1977 (2)
 12,13 Jan. 1978 (2)
 27,28,30 July 1978 (5)
 15,16,20 Jan. 1979 (5)
 1,2 Aug. 1979 (5)
 14-16 Jan. 1980 (5)

Kaneha Reservoir

322 HDFG: 1
 323 HDFG: 0
 324 HDFG: 0
 325 HDFG: 0
 326 HDFG: 0
 327 HDFG: 0
 328 HDFG: 0
 329 HDFG: 0
 330 HDFG: 0
 331 HDFG: 0

1 Aug. 1975 (1)
 15 Jan. 1976 (2)
 4,5 Aug. 1976 (2)
 13 Jan. 1977 (2)
 27,28 July 1977 (2)
 12,13 Jan. 1978 (2)
 15,16,20 Jan. 1979 (5)
 1,2 Aug. 1979 (5)
 14-16 Jan. 1980 (5)
 31 July, 1 Aug. 1980 (5)

Kanehu Reservoir #1

332 HDFG: 0	1 Aug. 1975	(1)
333 HDFG: 0	15 Jan. 1976	(2)
334 HDFG: 1	4,5 Aug. 1976	(2)
335 HDFG: 0	27,28 July 1977	(2)
336 HDFG: 0	12,13 Jan. 1978	(2)
337 HDFG: 0	15,16,20 Jan. 1979	(5)
338 HDFG: 0	1,2 Aug. 1979	(5)
339 HDFG: 0	14-16 Jan. 1980	(5)

Kanehu Reservoir #2

340 HDFG: 0	1 Aug. 1975	(1)
341 HDFG: 1	15 Jan. 1976	(2)
342 HDFG: 0	4,5 Aug. 1976	(2)
343 HDFG: 0	13 Jan. 1977	(2)
344 HDFG: 0	27,28 July 1977	(2)
345 HDFG: 0	12,13 Jan. 1978	(2)
346 HDFG: 0	1,2 Aug. 1979	(5)
347 HDFG: 0	14-16 Jan. 1980	(5)
348 HDFG: 0	12 Jan. 1981	(5)

Kanehu Reservoir #3

349 HDFG: 0	1 Aug. 1975	(1)
350 HDFG: 0	15 Jan. 1976	(2)
351 HDFG: 0	4,5 Aug. 1976	(2)
352 HDFG: 0	13 Jan. 1977	(2)
353 HDFG: 0	27,28 July 1977	(2)
354 HDFG: 0	12,13 Jan. 1978	(2)
355 HDFG: 0	1,2 Aug. 1979	(5)
356 HDFG: 0	14-16 Jan. 1980	(5)
357 HDFG: 0	12 Jan. 1981	(5)

Kilauea Estuary

358 HDFG: 0	1 Aug. 1975	(1)
359 HDFG: 0	15 Jan. 1976	(2)
360 HDFG: 0	4,5 Aug. 1976	(2)

361 HDFG: 0	13 Jan. 1977	(2)
362 HDFG: 0	27,28 July 1977	(2)
363 Shallenberger: ...surveyed from the road to the beach and by boat to the stream...two seen on survey at edge of the lowest bulrush patch on 20 May and others heard calling from within the same patch on 23 July 1977	(1977)	(3)
364 HDFG: 0	12,13 Jan. 1978	(2)
365 HDFG: 0	15,16,20 Jan. 1979	(5)
366 HDFG: 0	1,2 Aug. 1979	(5)
367 HDFG: 0	14-16 Jan. 1980	(5)
368 HDFG: 0	12 Jan. 1981	(5)

Mimino Reservoir

369 HDFG: 0	1 Aug. 1975	(1)
370 HDFG: 0	15 Jan. 1976	(2)
371 HDFG: 0	12,13 Jan. 1978	(2)

Morita Reservoir

372 HDFG: 0	1 Aug. 1975	(1)
373 HDFG: 2	15 Jan. 1976	(2)
374 HDFG: 1	4,5 Aug. 1976	(2)
375 HDFG: 2	13 Jan. 1977	(2)
376 HDFG: 0	27,28 July 1977	(2)
377 HDFG: 0	12,13 Jan. 1978	(2)
378 HDFG: 0	27,28,30 July 1978	(5)
379 HDFG: 2	15,16,20 Jan. 1979	(5)
380 HDFG: 0	1,2 Aug. 1979	(5)
381 HDFG: 0	14-16 Jan. 1980	(5)

Puu Ka Ele Reservoir

382 HDFG: 0	1 Aug. 1975	(1)
383 HDFG: 0	15 Jan. 1976	(2)
384 HDFG: 0	4,5 Aug. 1976	(2)
385 HDFG: 1	13 Jan. 1977	(2)
386 HDFG: 0	27,28 July 1977	(2)
387 HDFG: 0	12,13 Jan. 1978	(2)
388 HDFG: 0	27,28,30 July 1978	(5)

389 HDFG: 0
390 HDFG: 0
391 HDFG: 0

15,16,20 Jan. 1979 (5)
1,2 Aug. 1979 (5)
14-16 Jan. 1980 (5)

Waiakalua Reservoir

392 HDFG: 2
393 HDFG: 0
394 HDFG: 0
395 HDFG: 4
396 HDFG: 0
397 HDFG: 0
398 HDFG: 1
399 HDFG: 2
400 HDFG: 0

1 Aug. 1975 (1)
15 Jan. 1976 (2)
4,5 Aug. 1976 (2)
13 Jan. 1977 (2)
27,28 July 1977 (2)
12,13 Jan. 1978 (2)
27,28,30 July 1978 (5)
15,16,20 Jan. 1979 (5)
1,2 Aug. 1979 (5)

KEKAHA

Kekaha Pastures

401 HDFG: 0
402 HDFG: 0
403 HDFG: 0
404 HDFG: 0
405 HDFG: 0
406 HDFG: 0
407 HDFG: 0
408 HDFG: 0
409 HDFG: 0
410 HDFG: 0

1 Aug. 1975 (1)
15 Jan. 1976 (2)
4,5 Aug. 1976 (2)
13 Jan. 1977 (2)
27,28 July 1977 (2)
12,13 Jan. 1978 (2)
27,28,30 July 1978 (5)
15,16,20 Jan. 1979 (5)
1,2 Aug. 1979 (5)
14-16 Jan. 1980 (5)

Kekaha Settling Basin

411 USFWS: 0
412 HDFG: 4
413 HDFG: 0
414 HDFG: 0
415 HDFG: 0
416 HDFG: 0
417 HDFG: 0

14 Sep. 1970 (12)
1 Aug. 1975 (1)
15 Jan. 1976 (2)
4,5 Aug. 1976 (2)
13 Jan. 1977 (2)
27,28 July 1977 (2)
12,13 Jan. 1978 (2)

418 HDFG: 1
 419 HDFG: 0
 420 HDFG: 0
 421 HDFG: 2

27,28,30 July 1978 (5)
 15,16,20 Jan. 1979 (5)
 1,2 Aug. 1979 (5)
 14-16 Jan. 1980 (5)

Kekaha Slaughterhouse Reservoir

422 HDFG: 0
 423 HDFG: 0
 424 HDFG: 0
 425 HDFG: 0
 426 HDFG: 0
 427 HDFG: 0
 428 HDFG: 0
 429 HDFG: 0
 430 HDFG: 0
 431 HDFG: 2

1 Aug. 1975 (1)
 15 Jan. 1976 (2)
 4,5 Aug. 1976 (2)
 13 Jan. 1977 (2)
 27,28 July 1977 (2)
 12,13 Jan. 1978 (2)
 27,28,30 July 1978 (5)
 15,16,20 Jan. 1979 (5)
 1,2 Aug. 1979 (5)
 14-16 Jan. 1980 (5)

Kahelunui Reservoir

432 HDFG: 0
 433 HDFG: 0
 434 HDFG: 0
 435 HDFG: 0
 436 HDFG: 0
 437 HDFG: 0
 438 HDFG: 0
 439 HDFG: 0
 440 HDFG: 0
 441 HDFG: 0
 442 HDFG: 0

1 Aug. 1975 (1)
 15 Jan. 1976 (2)
 4,5 Aug. 1976 (2)
 13 Jan. 1977 (2)
 27,28 July 1977 (2)
 12,13 Jan. 1978 (2)
 15,16,20 Jan. 1979 (5)
 1,2 Aug. 1979 (5)
 14-16 Jan. 1980 (5)
 31 July, 1 Aug. 1980 (5)
 12 Jan. 1981 (5)

Mana Base Pond

443 HDFG: 0
 444 HDFG: 2
 445 HDFG: 3
 446 HDFG: 2
 447 HDFG: 2
 448 HDFG: 2

1 Aug. 1975 (1)
 15 Jan. 1976 (2)
 4,5 Aug. 1976 (14)
 15 Sep. 1976 (14)
 27 Sep. 1976 (14)
 29 Sep. 1976 (14)

Waiawa Reservoir

509 HDFG: 0	1 Aug. 1975	(1)
510 HDFG: 0	15 Jan. 1976	(2)
511 HDFG: 0	4,5 Aug. 1976	(2)
512 HDFG: 0	13 Jan. 1977	(2)
513 HDFG: 0	27,28 July 1977	(2)
514 HDFG: 0	12,13 Jan. 1978	(2)
515 HDFG: 1	27,28,30 July 1978	(5)
516 HDFG: 0	15,16,20 Jan. 1979	(5)
517 HDFG: 1	1,2 Aug. 1979	(5)
518 HDFG: 0	14-16 Jan. 1980	(5)

Wailau Siphon Reservoir

519 HDFG: 0	4,5 Aug. 1976	(2)
520 HDFG: 0	13 Jan. 1977	(2)
521 HDFG: 0	27,28 July 1977	(2)
522 HDFG: 0	15,16,20 Jan. 1979	(5)
523 HDFG: 0	1,2 Aug. 1979	(5)
524 HDFG: 0	14-16 Jan. 1980	(5)

Waimea Heights Reservoir

525 HDFG: 0	1 Aug. 1975	(1)
526 HDFG: 0	15 Jan. 1976	(2)
527 HDFG: 0	4,5 Aug. 1976	(2)
528 HDFG: 0	13 Jan. 1977	(2)
529 HDFG: 0	27,28 July 1977	(2)
530 HDFG: 0	12,13 Jan. 1978	(2)
531 HDFG: 0	15,16,20 Jan. 1979	(5)
532 HDFG: 0	1,2 Aug. 1979	(5)
533 HDFG: 0	14-16 Jan. 1980	(5)

WAIMEA CANYON

Kepani Reservoir

534 HDFG: 0	14 Jan. 1981	(5)
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KAPAA

Aii Reservoir

535 HDFG: 0
536 HDFG: 0
537 HDFG: 0
538 HDFG: 0
539 HDFG: 0
540 HDFG: 0
541 HDFG: 0
542 HDFG: 0
543 HDFG: 0
544 HDFG: 0
545 HDFG: 0
546 HDFG: 0

1 Aug. 1975 (1)
15 Jan. 1976 (2)
4,5 Aug. 1976 (2)
13 Jan. 1977 (2)
27,28 July 1977 (2)
12,13 Jan. 1978 (2)
27,28,30 July 1978 (5)
15,16,20 Jan. 1979 (5)
1,2 Aug. 1979 (5)
14-16 Jan. 1980 (5)
31 July,1 Aug. 1980 (5)
12 Jan. 1981 (5)

DeMello Reservoir

547 HDFG: 0
548 HDFG: 0
549 HDFG: 0
550 HDFG: 0
551 HDFG: 0
552 HDFG: 0
553 HDFG: 0
554 HDFG: 0
555 HDFG: 0
556 HDFG: 0
557 HDFG: 0

1 Aug. 1975 (1)
15 Jan. 1976 (2)
4,5 Aug. 1976 (2)
13 Jan. 1977 (2)
27,28 July 1977 (2)
12,13 Jan. 1978 (2)
15,16,20 Jan. 1979 (5)
1,2 Aug. 1979 (5)
14-16 Jan. 1980 (5)
31 July,1 Aug. 1980 (5)
12 Jan. 1981 (5)

Fern Grotto Reservoir

558 HDFG: 0
559 HDFG: 0
560 HDFG: 0
561 HDFG: 0
562 HDFG: 0
563 HDFG: 0
564 HDFG: 0

1 Aug. 1975 (1)
15 Jan. 1976 (2)
4,5 Aug. 1976 (2)
13 Jan. 1977 (2)
27,28 July 1977 (2)
12,13 Jan. 1978 (2)
15,16,20 Jan. 1979 (5)

565 HDFG: 0
566 HDFG: 0
567 HDFG: 0

1,2 Aug. 1979 (5)
14-16 Jan. 1980 (5)
12 Jan. 1981 (5)

Halaula Reservoir

568 HDFG: 0
569 HDFG: 0
570 HDFG: 0
571 HDFG: 0
572 HDFG: 0
573 HDFG: 0
574 HDFG: 0
575 HDFG: 0

1 Aug. 1975 (1)
15 Jan. 1976 (2)
13 Jan. 1977 (2)
27,28 July 1977 (2)
12,13 Jan. 1978 (2)
15,16,20 Jan. 1979 (5)
1,2 Aug. 1979 (5)
14-16 Jan. 1980 (5)

Hanahanapuni Reservoir #429

576 HDFG: 0
577 HDFG: 0
578 HDFG: 0
579 HDFG: 0
580 HDFG: 0
581 HDFG: 0
582 HDFG: 0
583 HDFG: 0
584 HDFG: 0
585 HDFG: 0

1 Aug. 1975 (1)
15 Jan. 1976 (2)
4,5 Aug. 1976 (2)
13 Jan. 1977 (2)
27,28 July 1977 (2)
12,13 Jan. 1978 (2)
27,28,30 July 1978 (5)
15,16,20 Jan. 1979 (5)
1,2 Aug. 1979 (5)
12 Jan. 1981 (5)

Hanamaulu Reservoir

586 HDFG: 0
587 HDFG: 0
588 HDFG: 0
589 HDFG: 0
590 HDFG: 0
591 HDFG: 0
592 HDFG: 0
593 HDFG: 0
594 HDFG: 0
595 HDFG: 0

4,5 Aug. 1976 (2)
13 Jan. 1977 (2)
27,28 July 1977 (2)
12,13 Jan. 1978 (2)
27,28,30 July 1978 (5)
15,16,20 Jan. 1979 (5)
1,2 Aug. 1979 (5)
14-16 Jan. 1980 (5)
31 July, 1 Aug. 1980 (5)
12 Jan. 1981 (5)

Hanamalu Air Strip Reservoir
(year drained unknown)

596 HDFG: 0
597 HDFG: 0
598 HDFG: 0
599 HDFG: 0
600 HDFG: 0
601 HDFG: 0
602 HDFG: 0
603 HDFG: 0

1 Aug. 1975 (1)
15 Jan. 1976 (2)
27,28 July 1977 (2)
12,13 Jan. 1978 (2)
27,28,30 July 1978 (5)
15,16,20 Jan. 1979 (5)
14-16 Jan. 1980 (5)
12 Jan. 1981 (5)

Kailiiliahinale Reservoir

604 HDFG: 0
605 HDFG: 0
686 HDFG: 0
607 HDFG: 0
608 HDFG: 0
609 HDFG: 0
610 HDFG: 0
611 HDFG: 0
612 HDFG: 0
613 HDFG: 0

1 Aug. 1975 (1)
15 Jan. 1976 (2)
4,5 Aug. 1976 (2)
13 Jan. 1977 (2)
27,28 July 1977 (2)
12,13 Jan. 1978 (2)
27,28,30 July 1978 (5)
15,16,20 Jan. 1979 (5)
1,2 Aug. 1979 (5)
14-16 Jan. 1980 (5)

Kapaa Stable Reservoir

614 HDFG: 0
615 HDFG: 0
616 HDFG: 0
617 HDFG: 0
618 HDFG: 0
619 HDFG: 0
620 HDFG: 0
621 HDFG: 0
622 HDFG: 0

1 Aug. 1975 (1)
15 Jan. 1976 (2)
4,5 Aug. 1976 (2)
13 Jan. 1977 (2)
27,28 July 1977 (2)
12,13 Jan. 1978 (2)
15,16,20 Jan. 1979 (5)
1,2 Aug. 1979 (5)
14-16 Jan. 1980 (5)

Kapaa Stream Estuary

623 HDFG: 2	1 Aug. 1975	(1)
624 HDFG: 1	15 Jan. 1976	(2)
625 HDFG: 0	4,5 Aug. 1976	(2)
626 HDFG: 0	13 Jan. 1977	(2)
627 HDFG: 0	27,28 July 1977	(2)
628 Shallenberger: heard during 19 May and four seen on 21 July surveys...others may have been present on largest areas of open water we were unable to survey / Kapaa Marsh	(1977)	(3)
629 HDFG: 0	12,13 Jan. 1978	(2)
630 HDFG: 0	15,16,20 Jan. 1979	(5)
631 HDFG: 0	1,2 Aug. 1979	(5)
632 HDFG: 0	14-16 Jan. 1980	(5)
633 HDFG: 0	31 July, 1 Aug. 1980	(5)
634 HDFG: 0	12 Jan. 1981	(5)

Kapahi Pastures

635 HDFG: 0	4,5 Aug. 1976	(2)
636 HDFG: 0	13 Jan. 1977	(2)
637 HDFG: 0	27,28 July 1977	(2)
638 HDFG: 0	12,13 Jan. 1978	(2)
639 HDFG: 0	27,28,30 July 1978	(5)
640 HDFG: 0	1,2 Aug. 1979	(5)
641 HDFG: 0	14-16 Jan. 1980	(5)

Kapaia Reservoir

642 HDFG: 0	1 Aug. 1975	(1)
643 HDFG: 0	15 Jan. 1976	(2)
644 HDFG: 0	4,5 Aug. 1976	(2)
645 HDFG: 0	13 Jan. 1977	(2)
646 HDFG: 0	27,28 July 1977	(2)
647 HDFG: 0	12,13 Jan. 1978	(2)
648 HDFG: 0	15,16,20 Jan. 1979	(5)
649 HDFG: 0	1,2 Aug. 1979	(5)
650 HDFG: 0	14-16 Jan. 1980	(5)
651 HDFG: 0	31 July, 1 Aug. 1980	(5)

Lono Reservoir

652 HDFG: 0	1 Aug. 1975	(1)
653 HDFG: 0	15 Jan. 1976	(2)
654 HDFG: 0	4,5 Aug. 1976	(2)
655 HDFG: 0	13 Jan. 1977	(2)
656 HDFG: 0	27,28 July 1977	(2)
657 HDFG: 0	12,13 Jan. 1978	(2)
658 HDFG: 0	15,16,20 Jan. 1979	(5)
659 HDFG: 0	1,2 Aug. 1979	(5)
660 HDFG: 0	14-16 Jan. 1980	(5)
661 HDFG: 0	31 July, 1 Aug. 1980	(5)

Moiheha Canal

662 HDFG: 0	1 Aug. 1975	(1)
663 HDFG: 0	15 Jan. 1976	(2)
664 HDFG: 0	13 Jan. 1977	(2)
665 HDFG: 0	27,28 July 1977	(2)
666 HDFG: 0	12,13 Jan. 1978	(2)
667 HDFG: 0	15,16,20 Jan. 1979	(5)
668 HDFG: 0	1,2 Aug. 1979	(5)
669 HDFG: 0	14-16 Jan. 1980	(5)
670 HDFG: 0	31 July, 1 Aug. 1980	(5)
671 HDFG: 0	12 Jan. 1981	(5)

Moiheha Reservoir

672 HDFG: 0	4,5 Aug. 1976	(2)
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Wailua River / Opaekaa Valley

673 1 found in hau growth (Wailua River)	24 Dec. 1977	PYLR78a
674 Shallenberger: surveyed by visiting the taro fields along the Opaekaa Stream, traveling on the Wailua River Fern Grotto cruise, and by two foot surveys throughout Paradise Pacifica...gallinule widely distributed in the river bottoms...three seen in May (surveyed on 16th, 18th and 31th) when it is likely several more went undetected ...pair with two downy young seen in Opaekaa Stream...three adults		

observed in taro fields on 23 July...It was Paradise
Pacifica that proved most suitable for gallinule during our
survey...Fifteen were counted at the site in May, and 17 in
July when at least four broods of widely varying age were
seen

Opaekaa Valley

675 HDFG: 2 (Stream)	24 July 1968	(1)
676 HDFG: 2 (Rice Center)	7 Aug. 1970	(1)
677 2 seen (marshy area below Falls)	29 Dec. 1974	WILE75e
678 HDFG: 0 (Rice Center)	1 Aug. 1975	(1)
679 HDFG: 2 (Rice Center)	15 Jan. 1976	(2)
680 HDFG: 1	4,5 Aug. 1976	(2)
681 HDFG: 0	13 Jan. 1977	(2)
682 HDFG: 3	27,28 July 1977	(2)
683 HDFG: 0	12,13 Jan. 1978	(2)
684 HDFG: 0	27,28,30 July 1978	(5)
685 HDFG: 1	15,16,20 Jan. 1979	(5)
686 HDFG: 0	1,2 Aug. 1979	(5)
687 HDFG: 0	14-16 Jan. 1980	(5)

58

Wailua Homestead Pastures

688 Banko: up to 6 believed resident breeders (HDFG)	(1966)	(11)
689 HDFG: 2	8-10 Jan. 1968	(1)
690 HDFG: 1	13-15 Jan. 1970	(1)
691 HDFG: 0	4,5 Aug. 1976	(2)
692 HDFG: 0	13 Jan. 1977	(2)
693 HDFG: 0	12,13 Jan. 1978	(2)
694 HDFG: 0	27,28,30 July 1978	(5)
695 HDFG: 0	1,2 Aug. 1979	(5)
696 HDFG: 0	14-16 Jan. 1980	(5)

Paradise Pacifica

697 a number present	19 Mar. 1975	ZEIF75
698 HDFG: 21	1 Aug. 1975	(1)
699 HDFG: 4	15 Jan. 1976	(2)
700 HDFG: 8	4,5 Aug. 1976	(2)

701 HDFG: 4	13 Jan. 1977	(2)
702 HDFG: 19	27,28 July 1977	(2)
703 HDFG: 17	12,13 Jan. 1978	(2)
704 HDFG: 11	27,28,30 July 1978	(5)
705 HDFG: 5	15,16,20 Jan. 1979	(5)
706 HDFG: 15	1,2 Aug. 1979	(5)
707 HDFG: 18	14-16 Jan. 1980	(5)
708 HDFG: supported 41% of all gallinules found on Kaua'i during the summer census...3 broods ranging in age between one-quarter and one-half grown were seen with 4, 3, and 1 chicks per brood, respectively...a habitat well protected from predators where the birds have become used to the constant presence of people, and apparently benefit from supplemental food provided for other exotic waterfowl being kept there	31 July 1980	(5)

Pukaki Reservoir

709 HDFG: 0	1 Aug. 1975	(1)
710 HDFG: 0	15 Jan. 1976	(2)
711 HDFG: 0	4,5 Aug. 1976	(2)
712 HDFG: 0	13 Jan. 1977	(2)
713 HDFG: 0	27,28 July 1977	(2)
714 HDFG: 0	12,13 Jan. 1978	(2)
715 HDFG: 0	27,28,30 July 1978	(5)
716 HDFG: 0	15,16,20 Jan. 1979	(5)
717 HDFG: 1	1,2 Aug. 1979	(5)
718 HDFG: 0	12 Jan. 1981	(5)

Rodriques reservoir

719 HDFG: 0	1 Aug. 1975	(1)
720 HDFG: 0	15 Jan. 1976	(2)
721 HDFG: 0	4,5 Aug. 1976	(2)
722 HDFG: 0	13 Jan. 1977	(2)
723 HDFG: 0	27,28 July 1977	(2)
724 HDFG: 0	12,13 Jan. 1978	(2)
725 HDFG: 0	15,16,20 Jan. 1979	(5)
726 HDFG: 0	1,2 Aug. 1979	(5)
727 HDFG: 0	14-16 Jan. 1980	(5)

728 HDFG: 0
729 HDFG: 0

31 July, 1 Aug. 1980 (5)
12 Jan. 1981 (5)

Sloggett Reservoir

730 HDFG: 0
731 HDFG: 0
732 HDFG: 0
733 HDFG: 0
734 HDFG: 0
735 HDFG: 0
736 HDFG: 0
737 HDFG: 0
738 HDFG: 0
739 HDFG: 0

1 Aug. 1975 (1)
15 Jan. 1976 (2)
4, 5 Aug. 1976 (2)
13 Jan. 1977 (2)
27, 28 July 1977 (2)
12, 13 Jan. 1978 (2)
27, 28, 30 July 1978 (5)
15, 16, 20 Jan. 1979 (5)
1, 2 Aug. 1979 (5)
14-16 Jan. 1980 (5)

Twin Reservoir

740 HDFG: 0
741 HDFG: 0
742 HDFG: 0
743 HDFG: 0
744 HDFG: 0
745 HDFG: 0
746 HDFG: 0
747 HDFG: 0
748 HDFG: 0
749 HDFG: 0
750 HDFG: 0

1 Aug. 1975 (1)
15 Jan. 1976 (2)
4, 5 Aug. 1976 (2)
13 Jan. 1977 (2)
27, 28 July 1977 (2)
12, 13 Jan. 1978 (2)
15, 16, 20 Jan. 1979 (5)
1, 2 Aug. 1979 (5)
14-16 Jan. 1980 (5)
31 July, 1 Aug. 1980 (5)
12 Jan. 1981 (5)

Wailua Pond/Reservoir

751 HDFG: 0
752 HDFG: 0

15 Jan. 1976 (2)
12, 13 Jan. 1978 (2)

Waikaea Canal

753 HDFG: 0
754 HDFG: 0
755 HDFG: 0

1 Aug. 1975 (1)
15 Jan. 1976 (2)
4, 5 Aug. 1976 (2)

756 HDFG: 0
 757 HDFG: 0
 758 HDFG: 0
 759 HDFG: 0
 760 HDFG: 0
 761 HDFG: 0
 762 HDFG: 0
 763 HDFG: 0

13 Jan. 1977 (2)
 27,28 July 1977 (2)
 12,13 Jan. 1978 (2)
 15,16,20 Jan. 1979 (5)
 1,2 Aug. 1979 (5)
 14-16 Jan. 1980 (5)
 31 July,1 Aug. 1980 (5)
 12 Jan. 1981 (5)

Wailua Golf Course

764 HDFG: 0
 765 HDFG: 0
 766 HDFG: 0
 767 HDFG: 0
 768 HDFG: 0
 769 HDFG: 0
 770 HDFG: 0
 771 HDFG: 0
 772 HDFG: 0
 773 HDFG: 0
 774 HDFG: 0

1 Aug. 1975 (1)
 15 Jan. 1976 (2)
 4,5 Aug. 1976 (2)
 13 Jan. 1977 (2)
 27,28 July 1977 (2)
 12,13 Jan. 1978 (2)
 15,16,20 Jan. 1979 (5)
 1,2 Aug. 1979 (5)
 14-16 Jan. 1980 (5)
 31 July,1 Aug. 1980 (5)
 12 Jan. 1981 (5)

Wailua Jail Swamp

775 HDFG: 0
 776 HDFG: 0
 777 HDFG: 0
 778 HDFG: 0
 779 HDFG: 0
 780 HDFG: 0
 781 HDFG: 0
 782 HDFG: 0
 783 HDFG: 0
 784 HDFG: 0
 785 HDFG: 0

1 Aug. 1975 (1)
 15 Jan. 1976 (2)
 4,5 Aug. 1976 (2)
 13 Jan. 1977 (2)
 27,28 July 1977 (2)
 12,13 Jan. 1978 (2)
 15,16,20 Jan. 1979 (5)
 1,2 Aug. 1979 (5)
 14-16 Jan. 1980 (5)
 31 July,1 Aug. 1980 (5)
 12 Jan. 1981 (5)

HANAPEPE

Aaka Reservoir

786 HDFG: 0	1 Aug. 1975	(1)
787 HDFG: 0	15 Jan. 1976	(2)
788 HDFG: 0	4,5 Aug. 1976	(2)
789 HDFG: 0	13 Jan. 1977	(2)
790 HDFG: 0	27,28 July 1977	(2)
791 HDFG: 0	12,13 Jan. 1978	(2)
792 HDFG: 0	1,2 Aug. 1979	(5)
793 HDFG: 0	14 Jan. 1981	(5)

Alexander Reservoir

794 HDFG: 0	1 Aug. 1975	(1)
795 HDFG: 0	4,5 Aug. 1976	(2)
796 HDFG: 0	13 Jan. 1977	(2)
797 HDFG: 0	27,28 July 1977	(2)
798 HDFG: 0	12,13 Jan. 1978	(2)
799 HDFG: 0	1,2 Aug. 1979	(5)
800 HDFG: 0	31 July, 1 Aug. 1980	(5)
801 HDFG: 0	14 Jan. 1981	(5)

Ekahi Reservoir

802 HDFG: 0	1 Aug. 1975	(1)
803 HDFG: 0	15 Jan. 1976	(2)
804 HDFG: 0	4,5 Aug. 1976	(2)
805 HDFG: 0 (permanently dried up)	13 Jan. 1977	(2)
806 HDFG: 0	15,16,20 Jan. 1979	(5)
807 HDFG: 0	12 Jan. 1981	(5)

Elima Reservoir

808 HDFG: 0	1 Aug. 1975	(1)
809 HDFG: 0	15 Jan. 1976	(2)
810 HDFG: 0	4,5 Aug. 1976	(2)
811 HDFG: 0	13 Jan. 1977	(2)

812 HDFG: 0
 813 HDFG: 0
 814 HDFG: 0
 815 HDFG: 0
 816 HDFG: 0
 817 HDFG: 0

27,28 July 1977 (2)
 12,13 Jan. 1978 (2)
 15,16,20 Jan. 1979 (5)
 1,2 Aug. 1979 (5)
 14-16 Jan. 1980 (5)
 12 Jan. 1981 (5)

Elua Reservoir

818 HDFG: 0
 819 HDFG: 0
 820 HDFG: 0
 821 HDFG: 0
 822 HDFG: 0
 823 HDFG: 0
 824 HDFG: 0
 825 HDFG: 0
 826 HDFG: 0
 827 HDFG: 0

1 Aug. 1975 (1)
 15 Jan. 1976 (2)
 4,5 Aug. 1976 (2)
 13 Jan. 1977 (2)
 27,28 July 1977 (2)
 12,13 Jan. 1978 (2)
 15,16,20 Jan. 1979 (5)
 1,2 Aug. 1979 (5)
 14-16 Jan. 1980 (5)
 31 July, 1 Aug. 1980 (5)

Hanapepe Salt Pond

828 HDFG: 0
 829 HDFG: 0
 830 HDFG: 0
 831 HDFG: 0
 832 HDFG: 0
 833 HDFG: 0
 834 HDFG: 0
 835 HDFG: 0
 836 HDFG: 0
 837 HDFG: 0

1 Aug. 1975 (1)
 15 Jan. 1976 (2)
 4,5 Aug. 1976 (2)
 13 Jan. 1977 (2)
 27,28 July 1977 (2)
 12,13 Jan. 1978 (2)
 27,28,30 July 1978 (5)
 15,16,20 Jan. 1979 (5)
 1,2 Aug. 1979 (5)
 14-16 Jan. 1980 (5)

Hanapepe Taro Fields

838 HDFG: 0
 839 HDFG: 0
 840 HDFG: 0
 841 HDFG: 0
 842 HDFG: 0

1 Aug. 1975 (1)
 15 Jan. 1976 (2)
 4,5 Aug. 1976 (2)
 13 Jan. 1977 (2)
 27,28 July 1977 (2)

843 HDFG: 0
844 HDFG: 0
845 HDFG: 0
846 HDFG: 0
847 HDFG: 0
848 HDFG: 0

12,13 Jan. 1978 (2)
27,28,30 July 1978 (5)
15,16,20 Jan. 1979 (5)
1,2 Aug. 1979 (5)
14-16 Jan. 1980 (5)
31 July,1 Aug. 1980 (5)

Hukiwai Reservoir

849 HDFG: 0
850 HDFG: 0
851 HDFG: 0
852 HDFG: 0
853 HDFG: 0
854 HDFG: 0
855 HDFG: 0
856 HDFG: 0
857 HDFG: 0
858 HDFG: 0

1 Aug. 1975 (1)
15 Jan. 1976 (2)
4,5 Aug. 1976 (2)
13 Jan. 1977 (2)
27,28 July 1977 (2)
12,13 Jan. 1978 (2)
27,28,30 July 1978 (5)
15,16,20 Jan. 1979 (5)
1,2 Aug. 1979 (5)
14-16 Jan. 1980 (5)

Ioleau Reservoir

859 HDFG: 0
860 HDFG: 0
861 HDFG: 0
862 HDFG: 0
863 HDFG: 0
864 HDFG: 0
865 HDFG: 0
866 HDFG: 0
867 HDFG: 0
868 HDFG: 0

15 Jan. 1976 (2)
4,5 Aug. 1976 (2)
13 Jan. 1977 (2)
27,28 July 1977 (2)
12,13 Jan. 1978 (2)
27,28,30 July 1978 (5)
15,16,20 Jan. 1979 (5)
1,2 Aug. 1979 (5)
14-16 Jan. 1980 (5)
12 Jan. 1981 (5)

Ipuolono Reservoir

869 HDFG: 0
870 HDFG: 0
871 HDFG: 0
872 HDFG: 0
873 HDFG: 0

1 Aug. 1975 (1)
15 Jan. 1976 (2)
4,5 Aug. 1976 (2)
13 Jan. 1977 (2)
27,28 July 1977 (2)

874 HDFG: 0
875 HDFG: 0
876 HDFG: 0
877 HDFG: 0
878 HDFG: 0
879 HDFG: 0

12,13 Jan. 1978 (2)
27,28,30 July 1978 (5)
15,16,20 Jan. 1979 (5)
1,2 Aug. 1979 (5)
14-16 Jan. 1980 (5)
12 Jan. 1981 (5)

Kaawanui Reservoir

880 HDFG: 0
881 HDFG: 0
882 HDFG: 0
883 HDFG: 0
884 HDFG: 0
885 HDFG: 0
886 HDFG: 0

1 Aug. 1975 (1)
15 Jan. 1976 (2)
4,5 Aug. 1976 (2)
13 Jan. 1977 (2)
27,28 July 1977 (2)
12,13 Jan. 1978 (2)
1,2 Aug. 1979 (5)

Kalaeloa Reservoir

887 HDFG: 0
888 HDFG: 0
889 HDFG: 0
890 HDFG: 0
891 HDFG: 0
892 HDFG: 0
893 HDFG: 0

1 Aug. 1975 (1)
15 Jan. 1976 (2)
4,5 Aug. 1976 (2)
13 Jan. 1977 (2)
27,28 July 1977 (2)
12,13 Jan. 1978 (2)
1,2 Aug. 1979 (5)

Kalaheo Gulches Reservoirs

894 HDFG: 0

15 Jan. 1976 (2)

Kapa Reservoir

895 HDFG: 0
896 HDFG: 0
897 HDFG: 0
898 HDFG: 0
899 HDFG: 0
900 HDFG: 0
901 HDFG: 1

1 Aug. 1975 (1)
15 Jan. 1976 (2)
4,5 Aug. 1976 (2)
13 Jan. 1977 (2)
27,28 July 1977 (2)
12,13 Jan. 1978 (2)
15,16,20 Jan. 1979 (5)

902 HDFG: 0
903 HDFG: 0
904 HDFG: 0

1,2 Aug. 1979 (5)
14-16 Jan. 1980 (5)
31 July, 1 Aug. 1980 (5)

Kaumakani Gulch

905 HDFG: 0
906 HDFG: 0
907 HDFG: 0
908 HDFG: 0
909 HDFG: 0
910 HDFG: 0
911 HDFG: 0
912 HDFG: 0
913 HDFG: 0
914 HDFG: 0
915 HDFG: 0
916 HDFG: 0

1 Aug. 1975 (1)
15 Jan. 1976 (2)
4,5 Aug. 1976 (2)
13 Jan. 1977 (2)
27,28 July 1977 (2)
12,13 Jan. 1978 (2)
27,28,30 July 1978 (5)
15,16,20 Jan. 1979 (5)
1,2 Aug. 1979 (5)
14-16 Jan. 1980 (5)
31 July, 1 Aug. 1980 (5)
12 Jan. 1981 (5)

Kiaha Reservoir

917 HDFG: 1
918 HDFG: 1
919 HDFG: 1
920 HDFG: 1
921 HDFG: 0
922 HDFG: 1
923 HDFG: 1
924 HDFG: 0
925 HDFG: 0
926 HDFG: 0
927 HDFG: 0

1 Aug. 1975 (1)
15 Jan. 1976 (2)
4,5 Aug. 1976 (2)
13 Jan. 1977 (2)
27,28 July 1977 (2)
12,13 Jan. 1978 (2)
27,28,30 July 1978 (5)
15,16,20 Jan. 1979 (5)
1,2 Aug. 1979 (5)
14-16 Jan. 1980 (5)
12 Jan. 1981 (5)

Kuhumu Reservoir

928 HDFG: 0

1,2 Aug. 1979 (5)

Maele Reservoir

929 HDFG: 0

15 Jan. 1976 (2)

930 HDFG: 0
 931 HDFG: 0
 932 HDFG: 0
 933 HDFG: 0
 934 HDFG: 0
 935 HDFG: 0
 936 HDFG: 0
 937 HDFG: 0
 938 HDFG: 0

4,5 Aug. 1976 (2)
 13 Jan. 1977 (2)
 27,28 July 1977 (2)
 12,13 Jan. 1978 (2)
 15,16,20 Jan. 1979 (5)
 1,2 Aug. 1979 (5)
 14-16 Jan. 1980 (5)
 31 July,1 Aug. 1980 (5)
 12 Jan. 1981 (5)

Manienieula Reservoir

939 HDFG: 0
 940 HDFG: 0
 941 HDFG: 0
 942 HDFG: 0
 943 HDFG: 0
 944 HDFG: 0
 945 HDFG: 0
 946 HDFG: 0
 947 HDFG: 0
 948 HDFG: 0

1 Aug. 1975 (2)
 15 Jan. 1976 (2)
 4,5 Aug. 1976 (2)
 13 Jan. 1977 (2)
 27,28 July 1977 (2)
 12,13 Jan. 1978 (2)
 27,28,30 July 1978 (5)
 15,16,20 Jan. 1979 (5)
 1,2 Aug. 1979 (5)
 14-16 Jan. 1980 (5)

Mau Reservoir

949 HDFG: 0
 950 HDFG: 0
 951 HDFG: 0
 952 HDFG: 0
 953 HDFG: 0
 954 HDFG: 0
 955 HDFG: 0
 956 HDFG: 0
 957 HDFG: 0
 958 HDFG: 0

1 Aug. 1975 (1)
 15 Jan. 1976 (2)
 4,5 Aug. 1976 (2)
 13 Jan. 1977 (2)
 27,28 July 1977 (2)
 12,13 Jan. 1978 (2)
 15,16,20 Jan. 1979 (5)
 1,2 Aug. 1979 (5)
 14-16 Jan. 1980 (5)
 31 July,1 Aug. 1980 (5)

Nomilo Fish Pond

959 HDFG: 0
 960 HDFG: 0

4,5 Aug. 1976 (2)
 13 Jan. 1977 (2)

961 HDFG: 0
 962 HDFG: 0
 963 HDFG: 0
 964 HDFG: 0
 965 HDFG: 0
 966 HDFG: 0
 967 HDFG: 0

27,28 July 1977 (2)
 12,13 Jan. 1978 (2)
 15,16,20 Jan. 1979 (5)
 1,2 Aug. 1979 (5)
 14-16 Jan. 1980 (5)
 31 July, 1 Aug. 1980 (5)
 12 Jan. 1981 (5)

Nonopahu Reservoir

968 HDFG: 0
 969 HDFG: 0
 970 HDFG: 0
 971 HDFG: 0
 972 HDFG: 0
 973 HDFG: 0
 974 HDFG: 0
 975 HDFG: 0
 976 HDFG: 0

1 Aug. 1975 (1)
 15 Jan. 1976 (2)
 4,5 Aug. 1976 (2)
 13 Jan. 1977 (2)
 27,28 July 1977 (2)
 12,13 Jan. 1978 (2)
 1,2 Aug. 1979 (5)
 31 July, 1 Aug. 1980 (5)
 14 Jan. 1981 (5)

Olokele Settling Basin

977 HDFG: 0
 978 HDFG: 0
 979 HDFG: 0
 980 HDFG: 0
 981 HDFG: 0
 982 HDFG: 0
 983 HDFG: 0
 984 HDFG: 0
 985 HDFG: 0
 986 HDFG: 0

1 Aug. 1975 (1)
 15 Jan. 1976 (2)
 4,5 Aug. 1976 (2)
 13 Jan. 1977 (2)
 27,28 July 1977 (2)
 12,13 Jan. 1978 (2)
 15,16,20 Jan. 1979 (5)
 1,2 Aug. 1979 (5)
 14-16 Jan. 1980 (5)
 12 Jan. 1981 (5)

Poopueo Reservoir

987 HDFG: 0
 988 HDFG: 0
 989 HDFG: 0
 990 HDFG: 0
 991 HDFG: 0

1 Aug. 1975 (1)
 15 Jan. 1976 (2)
 4,5 Aug. 1976 (2)
 13 Jan. 1977 (2)
 27,28 July 1977 (2)

992 HDFG: 0
 993 HDFG: 0
 994 HDFG: 0
 995 HDFG: 0

12,13 Jan. 1978 (2)
 1,2 Aug. 1979 (5)
 14-16 Jan. 1980 (5)
 31 July, 1 Aug. 1980 (5)

Pulani Reservoir

996 HDFG: 0
 997 HDFG: 0
 998 HDFG: 0
 999 HDFG: 0
 1000 HDFG: 0
 1001 HDFG: 0
 1002 HDFG: 0
 1003 HDFG: 0

1 Aug. 1975 (2)
 15 Jan. 1976 (2)
 4,5 Aug. 1976 (2)
 13 Jan. 1977 (2)
 27,28 July 1977 (2)
 12,13 Jan. 1978 (2)
 27,28,30 July 1978 (5)
 1,2 Aug. 1979 (5)

Puu O Papai Reservoir

1004 HDFG: 0
 1005 HDFG: 0
 1006 HDFG: 0
 1007 HDFG: 0
 1008 HDFG: 0
 1009 HDFG: 0
 1010 HDFG: 0
 1011 HDFG: 0
 1012 HDFG: 0

1 Aug. 1975 (1)
 15 Jan. 1976 (2)
 4,5 Aug. 1976 (2)
 13 Jan. 1977 (2)
 27,28 July 1977 (2)
 12,13 Jan. 1978 (2)
 27,28,30 July 1978 (5)
 14-16 Jan. 1980 (5)
 12 Jan. 1981 (5)

Umi Reservoir

1013 HDFG: 0
 1014 HDFG: 0
 1015 HDFG: 0
 1016 HDFG: 0
 1017 HDFG: 0
 1018 HDFG: 0
 1019 HDFG: 0
 1020 HDFG: 0
 1021 HDFG: 0
 1022 HDFG: 0
 1023 HDFG: 0

1 Aug. 1975 (1)
 15 Jan. 1976 (2)
 4,5 Aug. 1976 (2)
 13 Jan. 1977 (2)
 27,28 July 1977 (2)
 12,13 Jan. 1978 (2)
 15,16,20 Jan. 1979 (5)
 1,2 Aug. 1979 (5)
 14-16 Jan. 1980 (5)
 31 July, 1 Aug. 1980 (5)
 12 Jan. 1981 (5)

Wahiawa Bridge Reservoir

1024 HDFG: 1
1025 HDFG: 0
1026 HDFG: 0
1027 HDFG: 0
1028 HDFG: 0
1029 HDFG: 0
1030 HDFG: 0
1031 HDFG: 0
1032 HDFG: 0

15 Jan. 1976 (2)
4,5 Aug. 1976 (2)
13 Jan. 1977 (2)
27,28 July 1977 (2)
12,13 Jan. 1978 (2)
15,16,20 Jan. 1979 (5)
1,2 Aug. 1979 (5)
14-16 Jan. 1980 (5)
31 July,1 Aug. 1980 (5)

Waikai Reservoir

1033 HDFG: 0
1034 HDFG: 0
1035 HDFG: 0
1036 HDFG: 0
1037 HDFG: 0
1038 HDFG: 0
1039 HDFG: 0

1 Aug. 1975 (1)
15 Jan. 1976 (2)
4,5 Aug. 1976 (2)
13 Jan. 1977 (2)
27,28 July 1977 (2)
12,13 Jan. 1978 (2)
12 Jan. 1981 (5)

Waikoloi Reservoir

1040 HDFG: 0
1041 HDFG: 0
1042 HDFG: 0
1043 HDFG: 0
1044 HDFG: 0
1045 HDFG: 0
1046 HDFG: 0
1047 HDFG: 0
1048 HDFG: 0

1 Aug. 1975 (1)
15 Jan. 1976 (2)
4,5 Aug. 1976 (2)
13 Jan. 1977 (2)
27,28 July 1977 (2)
12,13 Jan. 1978 (2)
15,16,20 Jan. 1979 (5)
1,2 Aug. 1979 (5)
14 Jan. 1981 (5)

Waimea Taro Fields

1049 HDFG: 0
1050 HDFG: 0
1051 HDFG: 0

1 Aug. 1975 (1)
15 Jan. 1976 (2)
4,5 Aug. 1976 (2)

1052 HDFG: 0
 1053 HDFG: 0
 1054 HDFG: 0
 1055 HDFG: 0
 1056 HDFG: 0
 1057 HDFG: 2

13 Jan. 1977 (2)
 27,28 July 1977 (2)
 12,13 Jan. 1978 (2)
 15,16,20 Jan. 1979 (5)
 1,2 Aug. 1979 (5)
 14-16 Jan.1980 (5)

KOLOA

Aepo Reservoir

1058 HDFG: 0
 1059 HDFG: 0
 1060 HDFG: 0
 1061 HDFG: 0
 1062 HDFG: 0
 1063 HDFG: 0
 1064 HDFG: 0
 1065 HDFG: 0
 1066 HDFG: 0
 1067 HDFG: 0

1 Aug. 1975 (1)
 15 Jan. 1976 (2)
 4,5 Aug. 1976 (2)
 13 Jan. 1977 (2)
 27,28 July 1977 (2)
 12,13 Jan. 1978 (2)
 15,16,20 Jan. 1979 (5)
 1,2 Aug. 1979 (5)
 14-16 Jan.1980 (5)
 31 July,1 Aug. 1980 (5)

Aepoalua Reservoir

1068 HDFG: 0
 1069 HDFG: 0
 1070 HDFG: 0
 1071 HDFG: 0
 1072 HDFG: 0
 1073 HDFG: 0
 1074 HDFG: 1
 1075 HDFG: 0
 1076 HDFG: 0

1 Aug. 1975 (1)
 15 Jan. 1976 (2)
 4,5 Aug. 1976 (2)
 13 Jan. 1977 (2)
 27,28 July 1977 (2)
 15,16,20 Jan. 1979 (5)
 1,2 Aug. 1979 (5)
 14-16 Jan.1980 (5)
 31 July,1 Aug. 1980 (5)

Aepoeha Reservoir

1077 HDFG: 0
 1078 HDFG: 0
 1079 HDFG: 0
 1080 HDFG: 0

1 Aug. 1975 (1)
 15 Jan. 1976 (2)
 4,5 Aug. 1976 (2)
 13 Jan. 1977 (2)

1081 HDFG: 0
1082 HDFG: 0
1083 HDFG: 0
1084 HDFG: 0
1085 HDFG: 0
1086 HDFG: 0

27,28 July 1977 (2)
12,13 Jan. 1978 (2)
27,28,30 July 1978 (5)
15,16,20 Jan. 1979 (5)
1,2 Aug. 1979 (5)
14-16 Jan.1980 (5)

Aepoekolu Reservoir

1087 HDFG: 0
1088 HDFG: 0
1089 HDFG: 0
1090 HDFG: 0
1091 HDFG: 0
1092 HDFG: 0
1093 HDFG: 0
1094 HDFG: 0
1095 HDFG: 0
1096 HDFG: 0

1 Aug. 1975 (1)
15 Jan. 1976 (2)
4,5 Aug. 1976 (2)
13 Jan. 1977 (2)
27,28 July 1977 (2)
12,13 Jan. 1978 (2)
27,28,30 July 1978 (5)
15,16,20 Jan. 1979 (5)
1,2 Aug. 1979 (5)
14-16 Jan.1980 (5)

Grove Farm Settling Basin

1097 HDFG: 1
1098 HDFG: 0
1099 HDFG: 2
1100 HDFG: 0
1101 HDFG: 0
1102 HDFG: 0
1103 HDFG: 1
1104 HDFG: 0
1105 HDFG: 0
1106 HDFG: 3
1107 HDFG: 2
1108 HDFG: 0

2 Aug. 1974 (1)
1 Aug. 1975 (1)
15 Jan. 1976 (2)
4,5 Aug. 1976 (2)
13 Jan. 1977 (2)
27,28 July 1977 (2)
12,13 Jan. 1978 (2)
27,28,30 July 1978 (5)
15,16,20 Jan. 1979 (5)
1,2 Aug. 1979 (5)
14-16 Jan.1980 (5)
31 July,1 Aug. 1980 (5)

Grove Farm Trash Pile

1109 HDFG: 0
1110 HDFG: 0
1111 HDFG: 0

1 Aug. 1975 (1)
15 Jan. 1976 (2)
4,5 Aug. 1976 (2)

1112 HDFG: 0
 1113 HDFG: 0
 1114 HDFG: 0
 1115 HDFG: 0
 1116 HDFG: 0
 1117 HDFG: 0

13 Jan. 1977 (2)
 27,28 July 1977 (2)
 12,13 Jan. 1978 (2)
 15,16,20 Jan. 1979 (5)
 1,2 Aug. 1979 (5)
 14-16 Jan.1980 (5)

Halenanahu Reservoir

1118 HDFG: 0
 1119 HDFG: 0
 1120 HDFG: 0
 1121 HDFG: 0
 1122 HDFG: 0
 1123 HDFG: 0
 1124 HDFG: 0
 1125 HDFG: 0
 1126 HDFG: 0

1 Aug. 1975 (1)
 15 Jan. 1976 (2)
 4,5 Aug. 1976 (2)
 13 Jan. 1977 (2)
 27,28 July 1977 (2)
 12,13 Jan. 1978 (2)
 15,16,20 Jan. 1979 (5)
 1,2 Aug. 1979 (5)
 14-16 Jan.1980 (5)

Hanini Reservoir

1127 HDFG: 1
 1128 HDFG: 2
 1129 HDFG: 0
 1130 HDFG: 2
 1131 HDFG: 0
 1132 HDFG: 0
 1133 HDFG: 0
 1134 HDFG: 0
 1135 HDFG: 0
 1136 HDFG: 0

1 Aug. 1975 (1)
 15 Jan. 1976 (2)
 4,5 Aug. 1976 (2)
 13 Jan. 1977 (2)
 27,28 July 1977 (2)
 12,13 Jan. 1978 (2)
 27,28,30 July 1978 (5)
 15,16,20 Jan. 1979 (5)
 1,2 Aug. 1979 (5)
 14-16 Jan.1980 (5)

Huinawai Reservoir

1137 HDFG: 0
 1138 HDFG: 1
 1139 HDFG: 0
 1140 HDFG: 0
 1141 HDFG: 0
 1142 HDFG: 0

1 Aug. 1975 (1)
 15 Jan. 1976 (2)
 4,5 Aug. 1976 (2)
 13 Jan. 1977 (2)
 27,28 July 1977 (2)
 12,13 Jan. 1978 (2)

1143 HDFG: 0
1144 HDFG: 0
1145 HDFG: 0
1146 HDFG: 0

27,28,30 July 1978 (5)
15,16,20 Jan. 1979 (5)
1,2 Aug. 1979 (5)
14-16 Jan.1980 (5)

Kaupale Reservoir

1147 HDFG: 0
1148 HDFG: 0
1149 HDFG: 0
1150 HDFG: 0
1151 HDFG: 0
1152 HDFG: 0
1153 HDFG: 0
1154 HDFG: 0
1155 HDFG: 0
1156 HDFG: 0
1157 HDFG: 0

1 Aug. 1975 (1)
15 Jan. 1976 (2)
4,5 Aug. 1976 (2)
13 Jan. 1977 (2)
27,28 July 1977 (2)
12,13 Jan. 1978 (2)
27,28,30 July 1978 (5)
15,16,20 Jan. 1979 (5)
1,2 Aug. 1979 (5)
14-16 Jan.1980 (5)
31 July,1 Aug. 1980 (5)

Kipu Reservoir No. 1

1158 HDFG: 0
1159 HDFG: 0
1160 HDFG: 0
1161 HDFG: 0
1162 Shallenberger: 0
1163 Shallenberger: 0
1164 HDFG: 0
1165 HDFG: 0
1166 HDFG: 0
1167 HDFG: 0
1168 HDFG: 0
1169 HDFG: 0

1 Aug. 1975 (1)
15 Jan. 1976 (2)
4,5 Aug. 1976 (2)
13 Jan. 1977 (2)
18 May 1977 (3)
20 July 1977 (3)
27,28 July 1977 (2)
12,13 Jan. 1978 (2)
15,16,20 Jan. 1979 (5)
1,2 Aug. 1979 (5)
14-16 Jan.1980 (5)
31 July,1 Aug. 1980 (5)

Kipu Reservoir No. 2

1170 HDFG: 0
1171 HDFG: 0
1172 HDFG: 0
1173 HDFG: 0

1 Aug. 1975 (1)
15 Jan. 1976 (2)
4,5 Aug. 1976 (2)
13 Jan. 1977 (2)

1174 Shallenberger: 0
 1175 Shallenberger: 0
 1176 HDFG: 0
 1177 HDFG: 0
 1178 HDFG: 0
 1179 HDFG: 0
 1180 HDFG: 0
 1181 HDFG: 0

Kipu Reservoir No. 3

1182 HDFG: 0
 1183 HDFG: 0
 1184 HDFG: 0
 1185 HDFG: 0
 1186 HDFG: 0
 1187 Shallenberger: 0
 1188 Shallenberger: 0
 1189 HDFG: 0
 1190 HDFG: 0
 1191 HDFG: 0
 1192 HDFG: 0
 1193 HDFG: 0

Kipu Reservoirs (4)

1194 HDFG: 5
 1195 HDFG: 4
 1196 HDFG: 10
 1197 USFWS: 15
 1198 HDFG: 11

Kipu Road Reservoir

1199 HDFG: 0
 1200 HDFG: 0
 1201 HDFG: 0
 1202 HDFG: 0
 1203 Shallenberger: 0
 1204 Shallenberger: 0

18 May 1977 (3)
 20 July 1977 (3)
 27,28 July 1977 (2)
 12,13 Jan. 1978 (2)
 15,16,20 Jan. 1979 (5)
 1,2 Aug. 1979 (5)
 14-16 Jan.1980 (5)
 31 July,1 Aug. 1980 (5)

1 Aug. 1975 (1)
 15 Jan. 1976 (2)
 4,5 Aug. 1976 (2)
 13 Jan. 1977 (2)
 27,28 July 1977 (2)
 18 May 1977 (3)
 20 July 1977 (3)
 12,13 Jan. 1978 (2)
 15,16,20 Jan. 1979 (5)
 1,2 Aug. 1979 (5)
 14-16 Jan.1980 (5)
 31 July,1 Aug. 1980 (5)

8-10 Jan. 1968 (1)
 13-14 Jan. 1969 (1)
 13-15 Jan. 1970 (1)
 14 Sep. 1970 (12)
 27 July 1971 (1)

1 Aug. 1975 (1)
 15 Jan. 1976 (2)
 4,5 Aug. 1976 (2)
 13 Jan. 1977 (2)
 18 May 1977 (3)
 20 July 1977 (3)

1205 HDFG: 0
 1206 HDFG: 0
 1207 HDFG: 0
 1208 HDFG: 0
 1209 HDFG: 0
 1210 HDFG: 0
 1211 HDFG: 0

27,28 July 1977 (2)
 12,13 Jan. 1978 (2)
 15,16,20 Jan. 1979 (5)
 1,2 Aug. 1979 (5)
 14-16 Jan.1980 (5)
 31 July,1 Aug. 1980 (5)
 12 Jan. 1981 (5)

Koloakaapohu Reservoir

1212 HDFG: 0
 1213 HDFG: 2
 1214 HDFG: 2
 1215 HDFG: 4
 1216 HDFG: 2
 1217 HDFG: 1
 1218 HDFG: 0
 1219 HDFG: 4
 1220 HDFG: 0
 1221 HDFG: 0

1 Aug. 1975 (1)
 15 Jan. 1976 (2)
 4,5 Aug. 1976 (2)
 13 Jan. 1977 (2)
 27,28 July 1977 (2)
 12,13 Jan. 1978 (2)
 27,28,30 July 1978 (5)
 15,16,20 Jan. 1979 (5)
 1,2 Aug. 1979 (5)
 14-16 Jan.1980 (5)

Kumano Reservoir

1222 HDFG: 0
 1223 HDFG: 0
 1224 HDFG: 0
 1225 HDFG: 0
 1226 HDFG: 0
 1227 HDFG: 0
 1228 HDFG: 0
 1229 HDFG: 0
 1230 HDFG: 0
 1231 HDFG: 0
 1232 HDFG: 0
 1233 HDFG: 0

1 Aug. 1975 (1)
 15 Jan. 1976 (2)
 4,5 Aug. 1976 (2)
 13 Jan. 1977 (2)
 27,28 July 1977 (2)
 12,13 Jan. 1978 (2)
 27,28,30 July 1978 (5)
 15,16,20 Jan. 1979 (5)
 1,2 Aug. 1979 (5)
 14-16 Jan.1980 (5)
 31 July,1 Aug. 1980 (5)
 12 Jan. 1981 (5)

Lawai Kai Estuary

1234 HDFG: 0
 1235 HDFG: 0

4,5 Aug. 1976 (2)
 13 Jan. 1977 (2)

1236 HDFG: 0
 1237 HDFG: 0
 1238 HDFG: 0
 1239 HDFG: 0
 1240 HDFG: 0

27,28 July 1977 (2)
 12,13 Jan. 1978 (2)
 1,2 Aug. 1979 (5)
 14-16 Jan.1980 (5)
 31 July,1 Aug. 1980 (5)

Loko Reservoir

1241 HDFG: 0
 1242 HDFG: 0
 1243 HDFG: 0
 1244 HDFG: 1
 1245 HDFG: 0
 1246 HDFG: 0
 1247 HDFG: 0
 1248 HDFG: 0
 1249 HDFG: 0

1 Aug. 1975 (1)
 15 Jan. 1976 (2)
 4,5 Aug. 1976 (2)
 13 Jan. 1977 (2)
 27,28 July 1977 (2)
 12,13 Jan. 1978 (2)
 15,16,20 Jan. 1979 (5)
 1,2 Aug. 1979 (5)
 14-16 Jan.1980 (5)

Lua Wai Reservoir

1250 HDFG: 0
 1251 HDFG: 0
 1252 HDFG: 0
 1253 HDFG: 0
 1254 HDFG: 1
 1255 HDFG: 0
 1256 HDFG: 0
 1257 HDFG: 1
 1258 HDFG: 2

15 Jan. 1976 (2)
 4,5 Aug. 1976 (2)
 13 Jan. 1977 (2)
 27,28 July 1977 (2)
 12,13 Jan. 1978 (2)
 27,28,30 July 1978 (5)
 15,16,20 Jan. 1979 (5)
 1,2 Aug. 1979 (5)
 14-16 Jan. 1980 (5)

Mahaulepu Ponds

1259 HDFG: 0
 1260 HDFG: 0
 1261 HDFG: 0
 1262 HDFG: 0
 1263 HDFG: 0
 1264 HDFG: 0
 1265 HDFG: 0
 1266 HDFG: 0

1 Aug. 1975 (1)
 15 Jan. 1976 (2)
 4,5 Aug. 1976 (2)
 13 Jan. 1977 (2)
 27,28 July 1977 (2)
 12,13 Jan. 1978 (2)
 15,16,20 Jan. 1979 (5)
 1,2 Aug. 1979 (5)

1267 HDFG: 0
1268 HDFG: 0

14-16 Jan.1980 (5)
31 July,1 Aug. 1980 (5)

Manuhonuhonu Reservoir

1269 HDFG: 0
1270 HDFG: 0
1271 HDFG: 0
1272 HDFG: 0
1273 HDFG: 0
1274 HDFG: 0
1275 HDFG: 0
1276 HDFG: 0
1277 HDFG: 0
1278 HDFG: 0
1279 HDFG: 0

1 Aug. 1975 (1)
15 Jan. 1976 (2)
4,5 Aug. 1976 (2)
13 Jan. 1977 (2)
27,28 July 1977 (2)
12,13 Jan. 1978 (2)
15,16,20 Jan. 1979 (5)
1,2 Aug. 1979 (5)
14-16 Jan.1980 (5)
31 July,1 Aug. 1980 (5)
12 Jan. 1981 (5)

Mauka Reservoir

1280 HDFG: 0
1281 HDFG: 0
1282 HDFG: 0
1283 HDFG: 0
1284 HDFG: 0
1285 HDFG: 0
1286 HDFG: 0
1287 HDFG: 0
1288 HDFG: 0
1289 HDFG: 0

1 Aug. 1975 (1)
15 Jan. 1976 (2)
4,5 Aug. 1976 (2)
13 Jan. 1977 (2)
27,28 July 1977 (2)
12,13 Jan. 1978 (2)
27,28,30 July 1978 (5)
15,16,20 Jan. 1979 (5)
1,2 Aug. 1979 (5)
14-16 Jan.1980 (5)

Omao Reservoir

1290 HDFG: 0
1291 HDFG: 0
1292 HDFG: 0
1293 HDFG: 0
1294 HDFG: 0
1295 HDFG: 0
1296 HDFG: 0
1297 HDFG: 0

1 Aug. 1975 (1)
15 Jan. 1976 (2)
4,5 Aug. 1976 (2)
13 Jan. 1977 (2)
27,28 July 1977 (2)
12,13 Jan. 1978 (2)
27,28,30 July 1978 (5)
15,16,20 Jan. 1979 (5)

1298 HDFG: 0
1299 HDFG: 0

1,2 Aug. 1979 (5)
14-16 Jan.1980 (5)

Papuaa Reservoir

1300 HDFG: 0
1301 HDFG: 0
1302 HDFG: 0
1303 HDFG: 0
1304 HDFG: 0
1305 HDFG: 0
1306 HDFG: 0
1307 HDFG: 0
1308 HDFG: 0

1 Aug. 1975 (1)
15 Jan. 1976 (2)
4,5 Aug. 1976 (2)
27,28 July 1977 (2)
12,13 Jan. 1978 (2)
27,28,30 July 1978 (5)
15,16,20 Jan. 1979 (5)
1,2 Aug. 1979 (5)
14-16 Jan.1980 (5)

Papuaa Ridge Reservoir

1309 HDFG: 0
1310 HDFG: 0

27,28,30 July 1978 (5)
1,2 Aug. 1979 (5)

Pia Mill Reservoir

1311 HDFG: 1
1312 HDFG: 2
1313 HDFG: 0
1314 HDFG: 0
1315 HDFG: 0
1316 HDFG: 0
1317 HDFG: 0
1318 HDFG: 0
1319 HDFG: 0
1320 HDFG: 0

1 Aug. 1975 (1)
15 Jan. 1976 (2)
4,5 Aug. 1976 (2)
13 Jan. 1977 (2)
27,28 July 1977 (2)
12,13 Jan. 1978 (2)
27,28,30 July 1978 (5)
15,16,20 Jan. 1979 (5)
1,2 Aug. 1979 (5)
14-16 Jan.1980 (5)

Pinau Reservoir

1321 HDFG: 0
1322 HDFG: 0
1323 HDFG: 0
1324 HDFG: 0
1325 HDFG: 0

1 Aug. 1975 (1)
15 Jan. 1976 (2)
4,5 Aug. 1976 (2)
13 Jan. 1977 (2)
27,28 July 1977 (2)

1326 HDFG: 0
 1327 HDFG: 0
 1328 HDFG: 0
 1329 HDFG: 0
 1330 HDFG: 0
 1331 HDFG: 0
 1332 HDFG: 0

12,13 Jan. 1978 (2)
 27,28,30 July 1978 (5)
 15,16,20 Jan. 1979 (5)
 1,2 Aug. 1979 (5)
 14-16 Jan.1980 (5)
 31 July,1 Aug. 1980 (5)
 12 Jan. 1981 (5)

Piwai Reservoir

1333 HDFG: 0
 1334 HDFG: 0
 1335 HDFG: 0
 1336 HDFG: 0
 1337 HDFG: 0
 1338 HDFG: 0
 1339 HDFG: 0
 1340 HDFG: 0

1 Aug. 1975 (1)
 15 Jan. 1976 (2)
 4,5 Aug. 1976 (2)
 27,28 July 1977 (2)
 12,13 Jan. 1978 (2)
 15,16,20 Jan. 1979 (5)
 14-16 Jan.1980 (5)
 12 Jan. 1981 (5)

Poipu Ponds

1341 HDFG: 2
 1342 HDFG: 0
 1343 HDFG: 0
 1344 HDFG: 0
 1345 HDFG: 0
 1346 HDFG: 0
 1347 HDFG: 0
 1348 HDFG: 0
 1349 HDFG: 0
 1350 HDFG: 0
 1351 HDFG: 0
 1352 HDFG: 0

24 July 1968 (1)
 1 Aug. 1975 (1)
 15 Jan. 1976 (2)
 4,5 Aug. 1976 (2)
 13 Jan. 1977 (2)
 27,28 July 1977 (2)
 12,13 Jan. 1978 (2)
 15,16,20 Jan. 1979 (5)
 1,2 Aug. 1979 (5)
 14-16 Jan.1980 (5)
 31 July,1 Aug. 1980 (5)
 12 Jan. 1981 (5)

Puuhi Reservoir

1353 HDFG: 0
 1354 HDFG: 0
 1355 HDFG: 0
 1356 HDFG: 0

1 Aug. 1975 (1)
 15 Jan. 1976 (2)
 4,5 Aug. 1976 (2)
 13 Jan. 1977 (2)

1357 HDFG: 0
 1358 HDFG: 0
 1359 HDFG: 0
 1360 HDFG: 0
 1361 HDFG: 0

27,28 July 1977 (2)
 12,13 Jan. 1978 (2)
 15,16,20 Jan. 1979 (5)
 1,2 Aug. 1979 (5)
 14-16 Jan.1980 (5)

Puu O Hewa Reservoir

1362 HDFG: 0
 1363 HDFG: 0
 1364 HDFG: 0
 1365 HDFG: 1
 1366 HDFG: 0
 1367 HDFG: 0
 1368 HDFG: 0
 1369 HDFG: 0
 1370 HDFG: 0
 1371 HDFG: 0
 1372 HDFG: 0

1 Aug. 1975 (2)
 15 Jan. 1976 (2)
 4,5 Aug. 1976 (2)
 13 Jan. 1977 (2)
 27,28 July 1977 (2)
 12,13 Jan. 1978 (2)
 27,28,30 July 1978 (5)
 15,16,20 Jan. 1979 (5)
 1,2 Aug. 1979 (5)
 14-16 Jan.1980 (5)
 31 July,1 Aug. 1980 (5)

Waita Reservoir

1373 HDFG: 1
 1374 HDFG: 1
 1375 HDFG: 0
 1376 HDFG: 3
 1377 HDFG: 0
 1378 HDFG: 2
 1379 HDFG: 3
 1380 Shallenberger: recorded on both (16,18) May and 20 July surveys, bot in very low numbers (2,6)...it is certain that several were missed as they are very inconspicuous
 1381 HDFG: 6
 1382 HDFG: 1
 1383 HDFG: 1
 1384 HDFG: 0
 1385 HDFG: 1
 1386 HDFG: 3
 1387 HDFG: none censused; Reservoir full of water...very unusual

8-10 Jan. 1968 (1)
 8 Aug. 1973 (1)
 1 Aug. 1975 (1)
 15 Jan. 1976 (2)
 4,5 Aug. 1976 (2)
 13 Jan. 1977 (2)
 20 Jan. 1977 (14)
 (1977) (3)
 27,28 July 1977 (2)
 12,13 Jan. 1978 (2)
 27,28,30 July 1978 (5)
 15,16,20 Jan. 1979 (5)
 1,2 Aug. 1979 (5)
 14-16 Jan.1980 (5)
 31 July 1980 (5)

LIHUE

Ahukini Reservoir

1388 HDFG: 2
1389 USFWS: 1
1390 HDFG: 4
1391 HDFG: 1
1392 HDFG: 0
1393 HDFG: 0
1394 HDFG: 0
1395 HDFG: 0
1396 HDFG: 5
1397 HDFG: 1
1398 HDFG: 0
1399 HDFG: 1
1400 HDFG: 0
1401 HDFG: 0
1402 HDFG: 7
1403 HDFG: 3

13-15 Jan. 1970 (1)
14 Sep. 1970 (12)
27 July 1971 (1)
8 Aug. 1973 (1)
1 Aug. 1975 (1)
15 Jan. 1976 (2)
4,5 Aug. 1976 (2)
13 Jan. 1977 (2)
3 Feb. 1977 (14)
28 June 1977 (14)
27,28 July 1977 (2)
12,13 Jan. 1978 (2)
27,28,30 July 1978 (5)
15,16,20 Jan. 1979 (5)
1,2 Aug. 1979 (5)
14-16 Jan. 1980 (5)

Aweoweonui Valley

1404 HDFG: 0
1405 HDFG: 0
1406 HDFG: 0
1407 HDFG: 0
1408 HDFG: 0
1409 HDFG: 0
1410 HDFG: 0
1411 HDFG: 0

1 Aug. 1975 (1)
15 Jan. 1976 (2)
4,5 Aug. 1976 (2)
13 Jan. 1977 (2)
27,28 July 1977 (2)
12,13 Jan. 1978 (2)
1,2 Aug. 1979 (5)
14-16 Jan. 1980 (5)

Halehaka Reservoir

1412 HDFG: 0
1413 HDFG: 0
1414 HDFG: 0
1415 HDFG: 0
1416 HDFG: 0

1 Aug. 1975 (1)
15 Jan. 1976 (2)
4,5 Aug. 1976 (2)
13 Jan. 1977 (2)
27,28 July 1977 (2)

1417 HDFG: 0
 1418 HDFG: 0
 1419 HDFG: 0
 1420 HDFG: 0
 1421 HDFG: 0
 1422 HDFG: 0

12,13 Jan. 1978 (2)
 15,16,20 Jan. 1979 (5)
 1,2 Aug. 1979 (5)
 14-16 Jan. 1980 (5)
 31 July, 1 Aug. 1980 (5)
 12 Jan. 1981 (5)

Huleia National Wildlife Refuge

1423 HDFG: 5 (Huleia Stream)
 1424 HDFG: 0
 1425 HDFG: 2
 1426 HDFG: 0
 1427 HDFG: 0
 1428 HDFG: 0
 1429 HDFG: 0
 1430 HDFG: 1
 1431 HDFG: 0
 1432 USFWS: 1, average daily use
 1433 HDFG: 0
 1434 USFWS: 1, average daily use
 1435 USFWS: 1, average daily use
 1436 USFWS: 1, average daily use
 1437 USFWS: 0, average daily use
 1438 USFWS: 0, average daily use
 1439 USFWS: 5, average daily use
 1440 USFWS; 2, average daily use
 1440aUSFWS; 2, average daily use

 1440bUSFWS; 0, average daily use

 1440cUSFWS; 0, average daily use
 1440dUSFWS; 0, average daily use
 1441 USFWS; 0, average daily use

8 Aug. 1973 (1)
 1 Aug. 1975 (1)
 15 Jan. 1976 (2)
 4,5 Aug. 1976 (2)
 13 Jan. 1977 (2)
 27,28 July 1977 (2)
 12,13 Jan. 1978 (2)
 15,16,20 Jan. 1979 (5)
 1,2 Aug. 1979 (5)
 Oct.-Dec. 1979 (13)
 14-16 Jan. 1980 (5)
 Jan.-Mar. 1980 (13)
 Apr.-June 1980 (13)
 July-Sep. 1980 (13)
 Oct.-Dec. 1980 (13)
 Jan.-Mar. 1981 (13)
 Apr.-June 1981 (13)
 July-Sep. 1981 (13)
 16 Dec. 1981- (13)
 15 Jan. 1982
 16 Feb. 1981- (13)
 31 Mar. 1982
 April 1982 (13)
 May 1982 (13)
 June 1982 (13)

Kauai Surf Golf Course Ponds

1442 HDFG: 0
 1443 HDFG: 0
 1444 HDFG: 0
 1445 HDFG: 0

1 Aug. 1975 (1)
 15 Jan. 1976 (2)
 4,5 Aug. 1976 (2)
 13 Jan. 1977 (2)

1446 HDFG: 0
 1447 HDFG: 0
 1448 HDFG: 0
 1449 HDFG: 0
 1450 HDFG: 0
 1451 HDFG: 0

27,28 July 1977 (2)
 12,13 Jan. 1978 (2)
 15,16,20 Jan. 1979 (5)
 1,2 Aug. 1979 (5)
 14-16 Jan. 1980 (5)
 12 Jan. 1981 (5)

Kauai Surf Hotel Ponds

1452 3 seen
 1453 HDFG: 3
 1454 HDFG: 0
 1455 HDFG: 0
 1456 HDFG: 0
 1457 HDFG: 0
 1458 HDFG: 0
 1459 HDFG: 0
 1460 HDFG: 0
 1461 HDFG: 0

27 Dec. 1973 HARA74b
 1 Aug. 1975 (1)
 15 Jan. 1976 (2)
 4,5 Aug. 1976 (2)
 13 Jan. 1977 (2)
 27,28 July 1977 (2)
 12,13 Jan. 1978 (2)
 15,16,20 Jan. 1979 (5)
 1,2 Aug. 1979 (5)
 14-16 Jan. 1980 (5)

Kipu Reservoir No. 4

1462 HDFG: 0
 1463 HDFG: 0
 1464 HDFG: 0
 1465 HDFG: 0
 1466 Shallenberger: 0
 1467 Shallenberger: 0
 1468 HDFG: 0
 1469 HDFG: 0
 1470 HDFG: 0
 1471 HDFG: 0
 1472 HDFG: 0
 1473 HDFG: 0
 1474 HDFG: 0

1 Aug. 1975 (1)
 15 Jan. 1976 (2)
 4,5 Aug. 1976 (2)
 13 Jan. 1977 (2)
 18 May 1977 (3)
 20 July 1977 (3)
 27,28 July 1977 (2)
 12,13 Jan. 1978 (2)
 27,28,30 July 1978 (5)
 15,16,20 Jan. 1979 (5)
 1,2 Aug. 1979 (5)
 14-16 Jan. 1980 (5)
 31 July, 1 Aug. 1980 (5)

Lihue Plantation Settlement Basin

1475 8 counted
 1476 Banko: 13 + 1 young

6 Aug. 1965 DONW65a
 29 Nov. 1965 (18)

1477 USFWS; up to 20 believed usually present (HDFG)
 1478 lost 3 from botulism

1479 3 counted
 1480 5 counted
 1481 11 counted
 1482 groups present
 1483 common
 1484 HDFG: 26
 1485 HDFG: 18
 1486 HDFG: 38
 1487 UDFG: 10
 1488 USFWS: 10
 1489 USFWS: 3
 1490 USFWS: 18
 1491 HDFG: 0
 1492 HDFG: 0
 1493 HDFG: 0
 1494 HDFG: 0
 1495 HDFG: 5
 1496 HDFG: 1
 1497 HDFG: 0
 1498 HDFG: 0
 1499 HDFG: 0
 1500 HDFG: 2
 1501 HDFG: 1
 1502 HDFG: 0

(1966)	(11)
15 Dec. 1966-	SWEG67
23 Jan. 1967	
25 Jan. 1967	SWEG67
27 Jan. 1967	SWEG67
30 Jan. 1967	SWEG67
5 Nov. (1967)	DONM68b
4 Jan. 1968	ORER68
8-10 Jan. 1968	(1)
24 July 1968	(1)
13,14 Jan. 1969	(1)
13-15 Jan. 1970	(1)
7 Aug. 1970	(22)
14 Sep. 1970	(12)
27 July 1971	(1)
1 Aug. 1975	(1)
15 Jan. 1976	(2)
4,5 Aug. 1976	(2)
13 Jan. 1977	(2)
28 June 1977	(14)
20 July 1977	(14)
27,28 July 1977	(2)
12,13 Jan. 1978	(2)
27,28,30 July 1978	(5)
15,16,20 Jan. 1979	(5)
1,2 Aug. 1979	(5)
14-16 Jan. 1980	(5)

Menehune Fish Pond (now in Huleia National Wildlife Refuge)

1503 HDFG: 5
 1504 HDFG: 5
 1505 HDFG: 0
 1506 HDFG: 0
 1507 HDFG: 0
 1508 HDFG: 0
 1508aShallenberger: The largest number recorded at the fish pond in recent years is 2...it is entirely possible that some birds were missed on earlier counts...none were seen during our 16,19 May and 19 July 1977 surveys

8-10 Jan. 1968	(1)
13,14 Jan. 1969	(1)
1 Aug. 1975	(1)
15 Jan. 1976	(2)
4,5 Aug. 1976	(2)
13 Jan. 1977	(2)
(1977)	(3)

1509 HDFG: 0	27,28 July 1977	(2)
1510 HDFG: 0	12,13 Jan. 1978	(2)
1511 HDFG: 0	15,16,20 Jan. 1979	(5)
1512 HDFG: 0	1,2 Aug. 1979	(5)
1513 HDFG: 0	14-16 Jan. 1980	(5)
1514 HDFG: 0	31 July, 1 Aug. 1980	(5)

Niumalu Flats

1515 HDFG: Shallenberger: four adults surveyed on 19 May and a pair with two chicks on 20 July (in marsh)	(1977)	(3)
1516 HDFG: 0	12,13 Jan. 1978	(2)
1517 HDFG: 0	31 July, 1 Aug. 1980	(5)

Waiakaia Reservoir

1518 HDFG: 0	1 Aug. 1975	(1)
1519 HDFG: 0	15 Jan. 1976	(2)
1520 HDFG: 0	4,5 Aug. 1976	(2)
1521 HDFG: 0	13 Jan. 1977	(2)
1522 HDFG: 0	27,28 July 1977	(2)
1523 HDFG: 0	12,13 Jan. 1978	(2)
1524 HDFG: 0	1,2 Aug. 1979	(5)
1525 HDFG: 0	31 July, 1 Aug. 1980	(5)

Island of Ni'ihau

ISLANDWIDE INFERENCE

1526 almost unknown	2 Nov. 1939	MUNG40
1527 Munro: almost unknown on 8 or 9 lagoons	(ca. 1939)	(25)
1528 hardly known	1939	MUNG44
1529 HDFG: 0	1 Aug. 1975	(1)
1530 HDFG: 0	15 Jan. 1976	(2)
1531 HDFG: 0	4,5 Aug. 1976	(2)
1532 HDFG: 0	13 Jan. 1977	(2)
1533 HDFG: 0	27,28 July 1977	(2)
1534 HDFG: 0	12,13 Jan. 1978	(2)
1535 HDFG: 0	15,16,20 Jan. 1979	(5)
1536 HDFG: 0	1,2 Aug. 1979	(5)

1537 HDFG: 0
1538 HDFG: 0
1539 HDFG: 0

14-16 Jan. 1980 (5)
31 July, 1 Aug. 1980 (5)
12 Jan. 1981 (5)

QUADRANGLE/LOCALITY

Haa Reservoir

1540 HDFG: 0
1541 HDFG: 0

4, 5 Aug. 1976 (2)
13 Jan. 1977 (2)

Halalili Lake and Ditches

1542 HDFG: 0
1543 HDFG: 0
1544 HDFG: 0
1545 HDFG: 0
1546 HDFG: 0
1547 HDFG: 0
1548 HDFG: 0

4, 5 Aug. 1976 (2)
13 Jan. 1977 (2)
27, 28 July 1977 (2)
12, 13 Jan. 1978 (2)
27, 28, 30 July 1978 (5)
1, 2 Aug. 1979 (5)
14-16 Jan. 1980 (5)

Halulu Lake and Ditches

1549 HDFG: 0
1550 HDFG: 0
1551 HDFG: 0
1552 HDFG: 0
1553 HDFG: 0
1554 HDFG: 0
1555 HDFG: 0

4, 5 Aug. 1976 (2)
13 Jan. 1977 (2)
27, 28 July 1977 (2)
12, 13 Jan. 1978 (2)
27, 28, 30 July 1978 (5)
1, 2 Aug. 1979 (5)
14-16 Jan. 1980 (5)

Kaalialinui Valley

1556 HDFG:

1, 2 Aug. 1979 (5)

Kaumuhonu Reservoir

1557 HDFG: 0

14-16 Jan. 1980 (5)

Kaununuui Reservoir

1558 HDFG: 0	4,5 Aug. 1976	(2)
1559 HDFG: 0	12,13 Jan. 1978	(2)

Keanauhi Reservoir

1560 HDFG: 0	27,28 July 1977	(2)
1561 HDFG: 0	12,13 Jan. 1978	(2)
1562 HDFG: 0	14-16 Jan. 1980	(5)

Kiekie Pond(s)

1563 HDFG: 0	13 Jan. 1977	(2)
1564 HDFG: 0	27,28 July 1977	(2)
1565 HDFG: 0	27,28,30 July 1978	(5)
1566 HDFG: 0	14-16 Jan. 1980	(5)

Nonopapa Lake

1567 HDFG: 0	13 Jan. 1977	(2)
1568 HDFG: 0	27,28 July 1977	(2)
1569 HDFG: 0	12,13 Jan. 1978	(2)
1570 HDFG: 0	27,28,30 July 1978	(5)
1571 HDFG: 0	1,2 Aug. 1979	(5)
1572 HDFG: 0	14-16 Jan. 1980	(5)

Palikoe Pond

1573 HDFG: 0	12,13 Jan. 1978	(2)
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Pohueloa Rservoir

1574 HDFG: 0	27,28 July 1977	(2)
1575 HDFG: 0	12,13 Jan. 1978	(2)
1576 HDFG: 0	1,2 Aug. 1979	(5)
1577 HDFG: 0	31 July,1 Aug. 1980	(5)

Puu Alala Pond (s)

1578 HDFG: 0	12,13 Jan. 1978	(2)
1579 HDFG: 0	14-16 Jan. 1980	(5)
1580 HDFG: 0	31 July, 1 Aug. 1980	(5)

Puu Pond(s)

1581 HDFG: 0	12,13 Jan. 1978	(2)
1582 HDFG: 0	27,28,30 July 1978	(5)
1583 HDFG: 0	1,2 Aug. 1979	(5)

Island of O'ahu

ISLANDWIDE INFERENCE

1584 common in tule swamps, kalo (taro) patches and fish ponds all over the island	12 Nov. 1899- 20 Mar. 1900	SEAA00
1585 HDFG: 0	15-17 Jan. 1962	(1)
1586 HDFG: 1	Jan. 1963	(2)
1587 HDFG: 3	15 Jan. 1964	(1)
1588 HDFG: 25	14 Jan. 1965	(1)
1589 HDFG: 21	13,14 Jan. 1966	(1)
1590 HDFG: 6	13-16 Jan. 1967	(1)
1591 HDFG: 13	8-10 Jan. 1968	(1)
1592 HDFG: 21	24 July 1968	(1)
1593 HDFG: 5	13,14 Jan. 1969	(1)
1594 HDFG: 22	13-15 Jan. 1970	(1)
1595 HDFG: 12	7 Aug. 1970	(22)
1596 HDFG: 12	Jan. 1971	(2)
1597 HDFG: 15	Jan. 1972	(2)
1598 HDFG: 1	Jan. 1973	(2)
1599 HDFG: 5	Jan. 1974	(2)
1600 HDFG: 10	Jan. 1975	(2)
1601 HDFG: 15	1 Aug. 1975	(2)
1602 HDFG: 17	15 Jan. 1976	(2)
1603 HDFG: 26	Jan. 1977	(2)
1604 HDFG: 20	27,28 July 1977	(2)
1605 HDFG: 28	12,13 Jan. 1978	(2)
1606 HDFG: 58	1,2 Aug. 1979	(5)

1607 HDFG: 140	14-16 Jan. 1980	(5)
1608 HDFG: 39	31 July, 1 Aug. 1980	(5)
1609 HDFG: 120...some lotus fields in Haleiwa were unharvested when censused, which could account for the 87 seen (vs 99 last year)	12-14 Jan. 1981	(5)

UNSPECIFIED LOCATION

1610 Banko: Peale obtained 1 specimen	1840/1841	(10)
1611 Banko: Behn obtained 1 specimen	1846	(10)
1612 Banko: Palmer collected 7 specimens	1891-1893	(10)
1613 Banko: J. Seabury and F. McGuire collected 9 specimens in marsh, rice and taro fields	ca. 1900?	(10)
1614 Banko: Paty collected 1 specimen	22 Dec. 1936	(10)

MULTIQUADRANGLE/LOCALITY

1615 6 seen / Moanalau-Kalihi flats	26 Sep. (1944)	COGH45
1616 2 seen / Moanalau-Kalihi flats	4 Nov. (1944)	COGH45
1617 6 seen / Moanalau-Kalihi flats	14 Dec. (1944)	COGH45
1618 6 seen / Moanalau-Kalihi flats	17 Dec. (1944)	COGH45
1619 6, Christmas Count / Kuapa Pond, Kawainui Swamp, Kaelepulu Pond, Kalihi flats	17 Dec. 1944	CANH45
1620 6 seen / Moanalau-Kalihi flats	21 Dec. (1944)	COGH45
1621 2, Christmas Count / Kalihi flats, Kaelepulu Pond	29 Dec. 1946	ANON47
1622 2 seen / Kaneohe Marine Air Base, kealepua (Kaelepulu) Pond...the remainder of it...and Kahana Bay	25 Apr. 1954	ROCR54
1623 2, Christmas Count / Salt Lake, Damon Pond, Kalihi Basin, Sand Island	26 Dec. 1954	ANON55
1624 4 Christmas Count / 21 observers in 11 parties; 7 1/2 miles radius centering 2/5 mile NNE of Nuuanu Pali, including Ulupau Head and Kuliouou Pond (0600-1700 hours)	26 Dec. (1955)	BALH55
1625 1, Christmas Count / Salt Lake, Damon Pond, Sand Island	26 Dec. 1955	ANON56a
1626 3, Christmas Count / Bellows Field, Waimanalo	26 Dec. 1955	ANON56a
1627 5 counted / West Loch	29 Jan. 1956	GOSG56a
1628 4 seen / Kuliouou Park, Bellows Field and Kahana Bay, Kahuku, West Loch	26 Aug. 1956	ROCR56b
1629 1, Christmas Count / Bellows Field and Waimanalo	23 Dec. 1956	HATG57
1630 1, Christmas Count / Kaelepulu Pond and Kailua	27 Dec. 1959	ANON60a
1631 3 seen / Kahua Ranch area to West Loch	20 Aug. 1961	ORDW61

1632	1, Christmas Count / Bellows Field, Kaelepulu Pond, Saddle City	29 Dec. 1968	ANON69a
1633	1 seen (during 13 visits 9 Oct. to 30 Nov. 1969) / Waipio (Settlement Basin and Walker's Bay)	25 Oct., 29 Nov. 1969	MULW70b
1634	4, Christmas Count / Bellows Field, Saddle City, Kaelepulu Pond	27 Dec. 1970	MULW71f
1635	none reported / Waipio...Settlement Basins...dump	10 Oct. 1971	MULW71e
1636	5, Christmas Count / Bellows Field, Saddle City, Kaelepulu Pond	26 Dec. 1971	MULW72a
1637	2, Christmas Count / Bellows Field, Kaelepulu Pond	17 Dec. 1972	MULW72a
1638	4, Christmas Count / Kawainui Swamp, Quarry Road, Kailua dump	17 Dec. 1972	MULW72a
1639	3, Christmas Count / Kawainui Swamp, Quarry Road, Kailua	29 Dec. 1973	WILE74b
1640	2, Christmas Count / Kaelepulu Pond, Bellows Field	22 Dec. 1974	WILE75d
1641	2, Christmas Count / Kaneohe Bay Drive, Kaneohe MCAS, Moku Manu (Sector 9)	18 Dec. 1977	PYLR78a
1642	4, Christmas Count / Waimanalo, Bellows Field, Kaelepulu, Maunawili (Sector 7)	18 Dec. 1977	PYLR78a
1643	Shallenberger: Our surveys (of Pearl Harbor Wetland) was complicated by difficulty in obtaining independent access, so we rely heavily upon the historical data in evaluating the different sites...no more than two have been reported at the Honouliuli (USFWS) Refuge unit in recent years...we recorded one in the algae infested impoundment during our 1 June, 19 August visits...prawn farm at Honouliuli is the only Pearl Harbor location where nesting bu gallinule has been confirmed, at least in recent years. At this site, the Principal Investigator has recorded as many as 7 birds, and at least one nesting pair, each year since 1972. The fishpond north of the prawn farm also supports between 2-6 gallinule and it is likely that nesting occurs undetected in the dense shoreline vegetation. We could find no records of gallinule on Waipio Peninsula, but it is likely that small numbers occasionally visit freshwater stream drainages or irrigation ditches. Gordon Black...indicated to us that he has seen gallinule at the Waiawa (USFWS) Refuge unit, but they do not appear on count records / Pearl Harbor Wetlands (including Pearl Harbor NWR)		(1977) (3)
1644	1, Christmas Count / Pearl Harbor NWR	16 Dec. 1978	STEM79
1645	1, Christmas Count / Kaneohe Bay Drive, Kaneohe MCAS	17 Dec. 1978	PYLR79a

3-4 months after lotus was replanted...marked fluctuations 1979; Jan. 1980 (70%) observed in Kunehiro fields (though not others) indicating dispersal to unknown locations...nesting success determined for 29 of 34 nests was 45 percent / Haleiwa lotus fields (Kunehiro, Tantog, Ung, Kamalani) (8.0 ha)

1687 b Nagata: 113 adults censused / Kunihiro, Tantog, Ung, and Kamalani lotus fields	19 Dec. 1978	(52)
1687 c Nagata: 102 adults, 2 chicks censused / Kunihiro, Tantog, Ung, and Kamalani lotus fields	15 Jan. 1979	(52)
1687 d Nagata: 86 adults, 2 juv. censused / Kunihiro, Tantog, Ung and Kamalani lotus fields	6 Feb. 1979	(52)
1687 e Nagata: 84 adults, 1 juv. censused / Kunihiro, Tantog, Ung and Kamalani lotus fields	14 Feb. 1979	(52)
1687 f Nagata: 50 adults censused / Kunihiro, Tantog, Ung, and Kamalani lotus fields	1 Mar. 1979	(52)
1687 g Nagata: 40 adults censused / Kunihiro, Tantog, Ung, and Kamalani lotus fields	16 Mar. 1979	(52)
1687 h Nagata: 47 adults censused / Kunihiro, Tantog, Ung, and Kamalani lotus fields	24 Mar. 1979	(52)
1687 i Nagata: 40 adults, 3 chicks censused / Kunihiro, Tantog, Ung, and Kamalani lotus fields	7 Apr. 1979	(52)
1687 j Nagata: 43 adults, 8 chicks censused / Kunihiro, Tantog, Ung, and Kamalani lotus fields	15 Apr. 1979	(52)
1687 k Nagata: 44 adults, 15 chicks censused / Kunihiro, Tantog, Ung, and Kamalani lotus fields	29 Apr. 1979	(52)
1687 l Nagata: 37 adults, 2 chicks censused / Kunihiro, Tantog, Ung, and Kamalani lotus fields	13 Apr. 1979	(52)
1687 m Nagata: 46 adults, 5 juveniles, 27 chicks censused / Kunihiro, Ung, Tantog, Kamalani lotus fields	14 Apr. 1979	(52)
1687 n Nagata: 60 adults, 6 juveniles censused / Kunihiro, Tantog, Ung, and Kamalani lotus fields	21 Nov. 1979	(52)
1687 o Nagata: 98 adults, 5 juveniles censused / Kunihiro, Tantog, Ung, and Kamalani lotus fields	1 Dec. 1979	(52)
1687 p Nagata: 99 adults, 5 juveniles censused / Kunihiro, Tantog, Ung, and Kamalani lotus fields	8 Dec. 1979	(52)
1687 q Nagata: 103 adults, 6 juveniles censused / Kunihiro, Tantog, Ung, and Kamalani lotus fields	15 Dec. 1979	(52)
1687 r Nagata: 97 adults, 6 juveniles censused / Kunihiro, Tantog, Ung, and Kamalani lotus fields	19 Dec. 1979	(52)

1687sNagata: 94 adults, 1 chick censused / Kunihiro, Tantog, Ung, and Kamalani lotus fields	17 Jan. 1980	(52)
1688 HDFG: 15 / Central Fields	22 Nov. 1978	(6)
1689 HDFG: 49 / Kunihiro Fields	22 Nov. 1978	(6)
1690 HDFG: 77 / Kunihiro Fields	30 Nov. 1978	(6)
1691 HDFG: 15 / Central Fields	5 Dec. 1978	(6)
1692 HDFG: 34 / Kunihiro Fields	5 Dec. 1978	(6)
1693 HDFG: 88 / Kunihiro Fields	19 Dec. 1978	(6)
1694 HDFG: 25 / Central Fields	19 Dec. 1978	(6)
1695 HDFG: 22 / Central Fields	15 Jan. 1979	(6)
1696 HDFG: 82 / Kunehiro Fields	15 Jan. 1979	(6)
1697 HDFG: 118	15,16,20 Jan. 1979	(5)
1698 HDFG: 25 / Central Fields	6 Feb. 1979	(6)
1699 HDFG: 63 / Kunehiro Fields	6 Feb. 1979	(6)
1700 HDFG: 64 / Kunehiro Fields	14 Feb. 1979	(6)
1701 HDFG: 23 / Central Fields	14 Feb. 1979	(6)
1702 HDFG: 29 / Kunehiro Fields	3 Apr. 1979	(6)
1703 HDFG: 12 / Haleiwa Wetlands	1,2 Aug. 1979	(5)
1704 HDFG: 18 / Kunehiro Fields	1,2 Aug. 1979	(5)
1705 HDFG: 3 / Tsuruda Hasu Fields	1,2 Aug. 1979	(5)
1706 HDFG: 99 / Haleiwa Lotus Farm	14-16 Jan. 1980	(5)
1706aBurr & Morin: 61 / Kunehiro Fields	18 Nov. 1980	(48)
1706bBurr & Morin: 20 / Tantog Field	18 Nov. 1980	(48)
1706cNagata & Morin: 55 / Kunehiro Fields	2 Dec. 1980	(48)
1706dNagata & Morin: 29 / Tantog Field	2 Dec. 1980	(48)
1706eButterfield & Morin: 56 / Kunehiro Field	17 Dec. 1980	(48)
1706fButterfield & Morin: 23 / Tantog Field	17 Dec. 1980	(48)
1707 HDFG: 12 + / Kunehiro Lotus Fields	11 Jan. 1981	HARK81
1707aBurr & Pettys: 63 / Kunehiro Fields	12 Jan. 1981	(48)
1707bBurr & Pettys: 24 / Tantog Field	12 Jan. 1981	(48)
1707cMorin: 46 / Kunehiro Fields	4 Feb. 1981	(48)
1707dMorin: 18 / 50% Tantog Field	4 Feb. 1981	(48)
1707eMorin: 33 (incl. 5 chicks) / Kunehiro Fields	25 Feb. 1981	(48)
1707fMorin: 16 (incl. 4 chicks) / Tantog Field	25 Feb. 1981	(48)
1707gMorin: 48 (incl. 5 chicks) / Kunehiro Fields	12 Mar. 1981	(48)
1707hMorin: 23 (incl. 6 chicks) / Tantog Field	12 Mar. 1981	(48)
1707iMorin & Butterfield: 39 / Kunehiro Fields	3 Apr. 1981	(48)
1707jMorin & Butterfield: 24 (incl. 3 chicks) / Tantog Field	3 Apr. 1981	(48)

Helemano Reservoir

1708 HDFG: 0	12,13 Jan. 1978	(2)
1709 HDFG: 0	15,16,20 Jan. 1979	(5)
1710 HDFG: 0	1,2 Aug. 1979	(5)
1711 HDFG: 0	31 July, 1 Aug. 1980	(5)
1712 HDFG: to be excluded from future censuses due to non-use	to begin July 1981	

Kiaka Bay

1713 HDFG: 5	13,14 Jan. 1976	(1)
1714 HDFG: 0	4,5 Aug. 1976	(2)

Kawailoa (Meadow Gold)

1715 HDFG: 0	1,2 Aug. 1979	(5)
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Ukoa - Pond - Marsh

1716 saw parent with 4 young...no longer any gallinules along former channel connecting Ea Lake to the west with Ukoa Pond to the east...all overgrown with ditch grass and honohono...Kawailoa Swamp	July 1965	DONW65b	9
1717 HDFG: 2	24 July 1968	(1)	
1718 HDFG: 7	8 Aug. 1973	(1)	
1719 HDFG: 6	1-5 Aug. 1974	(1)	
1720 HDFG: 5	1 Aug. 1975	(1)	
1721 HDFG: 0	15 Jan. 1976	(2)	
1722 HDFG: 1	4,5 Aug. 1976	(2)	
1723 HDFG: 3	13 Jan. 1977	(2)	
1724 HDFG: 3	27,28 July 1977	(2)	
1725 Shallenberger: maximum of 18 counted 5 May...actual numbers probably as much as 50% higher...observed 8 and heard 4 others on 27 May	(1977)	(3)	
1726 HDFG: 1	12,13 Jan. 1978	(2)	
1727 HDFG: 3	27,28,30 July 1978	(5)	
1728 HDFG: 6	15,16,20 Jan. 1979	(5)	
1729 HDFG: 9	1,2 Aug. 1979	(5)	
1730 HDFG: 6	14-16 Jan. 1980	(5)	
1730a Butterfield & Morin: 1	17 Dec. 1980	(48)	

Waialua

1731 Banko: Bryan collected 1 specimen

26 Feb. 1907 (10)

Waialua Settling Basin

1732 HDFG: 0

15,16,20 Jan. 1979 (5)

1733 HDFG: 0

1,2 Aug. 1979 (5)

1734 HDFG: 0

14-16 Jan. 1980 (5)

1735 HDFG: 0

31 July, 1 Aug. 1980 (5)

Makaha - Ponds - Sewage

1736 HDFG: 0

1 Aug. 1975 (2)

1737 HDFG: 0

15 Jan. 1976 (2)

1738 HDFG: 0

4,5 Aug. 1976 (2)

1739 HDFG: 0

13 Jan. 1977 (2)

1740 HDFG: 3

27,28 July 1977 (2)

1741 HDFG: 0

12,13 Jan. 1978 (2)

Waianae - Dump - Sump - Valley

1742 HDFG: 2

13,14 Jan. 1966 (1)

1743 HDFG: 4

24 July 1968 (1)

1744 HDFG: 3

7 Jan. 1970 (1)

1745 HDFG: 3

13-15 Jan. 1970 (1)

1746 HDFG: 3

7 Aug. 1970 (1)

1747 HDFG: 0

15 Jan. 1976 (2)

1748 HDFG: 0

13 Jan. 1977 (2)

Yamaguchi Farm, Waianae

1749 HDFG: 0

4,5 Aug. 1976 (2)

1750 HDFG: 0

13 Jan. 1977 (2)

1751 HDFG: 0

27,28 July 1977 (2)

SCHOFIELD BARRACKS

Lualualei Naval Ammunition Depot

1752 HDFG: 4	8 Aug. 1973	(1)
1753 HDFG: 2	1,5 Aug. 1974	(1)
1754 2 seen at sewage pond	13 Apr. 1975	WILE75f
1755 HDFG: 6	1 Aug. 1975	(1)
1756 HDFG: 7	15 Jan. 1976	(2)
1757 HDFG: 0	4,5 Aug. 1976	(2)
1758 best place to see gallinule on O'ahu	1976	SWEG76
1759 HDFG: 3	13 Jan. 1977	(2)
1760 HDFG: 1	27,28 July 1977	(2)
1961 HDFG: 2	12,13 Jan. 1978	(2)
1962 HDFG: 1	27,28,30 July 1978	(5)
1763 HDFG: 7	15,16,20 Jan. 1979	(5)
1764 HDFG: 1	1,2 Aug. 1979	(5)
1765 HDFG: 1	14-16 Jan. 1980	(5)

EWA

Barbers Point Naval Air Station

1766 seen	July - Aug. 1963	YOCC68
1767 HDFG: 2	7 Jan. 1970	(1)
1768 HDFG: 2	7 Aug. 1970	(22)

Campbell Industrial Park

1769 HDFG: 0	1 Aug. 1975	(1)
1770 HDFG: 0	15 Jan. 1976	(2)
1771 HDFG: 0	4,5 Aug. 1976	(2)
1772 HDFG: 0	13 Jan. 1977	(2)
1773 HDFG: 0	27,28 July 1977	(2)
1774 HDFG: 0	12,13 Jan. 1978	(2)
1775 HDFG: 0	27,28,30 July 1978	(5)
1776 HDFG: 0	15,16,20 Jan. 1979	(5)
1777 HDFG: 0	1,2 Aug. 1979	(5)
1778 HDFG: 0	14-16 Jan. 1980	(5)

Ko'olau District

WAIMEA

Waialea - Wailea - Reservoir

1779 HDFG: 0	15 Jan. 1976	(2)
1780 HDFG: 0	13 Jan. 1977	(2)
1781 HDFG: 0	1,2 Aug. 1979	(5)

Waimea Arboretum

1782 HDFG: 0	12,13 Jan. 1978	(2)
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Waimea Falls Park - Stream

1783 HDFG: 0	13 Jan. 1977	(2)
1784 HDFG: 0	27,28 July 1977	(2)
1785 HDFG: 0	27,28,30 July 1978	(5)
1786 HDFG: 0	15,16,20 Jan. 1979	(5)
1787 HDFG: 0	1,2 Aug. 1979	(5)
1788 HDFG: 0	14-16 Jan. 1980	(5)

KAHUKU

James Campbell National Wildlife Refuge (Kii and Punamano Units)

1789 HDFG: 0	15,16,20 Jan. 1979	(5)
1789aNagata & Morin: 6 / inclu. vicinity	2 Dec. 1980	(48)
1790 USFWS: 30 average daily use	Oct.- Dec. 1980	(13)
1791 USFWS: 20 average daily use	Jan.- Mar. 1981	(13)
1792 USFWS: 25 average daily use	Apr.- June 1981	(13)
1793 1 seen	15 Sep. 1981	PYLR81c
1794 USFWS: 30 average daily use	July - Sep. 1981	(13)

Kahuku (Kii) Pond(s) (now in James Campbell National Wildlife Refuge)

1795 4, Christmas Count	24 Dec. 1939	BALH40
1796 several broods seen	14 Jan. 1940	(20)
1797 a few present	3 Nov. 1940	(20)

1798 ca. 4	17 Nov. 1940	(20)
1799 2, Christmas Count	22 Dec. 1940	BALH41
1800 1 seen	13 Jan. 1946	PEAG46
1801 5 seen	4 Jan. 1947	DONW47b
1802 2 seen	14 Nov. 1948	ANON49a
1803 0 (dry)	Dec.? 1948	ANON49b
1804 0	14 Aug. 1955	PYLB55
1805 0	23 Oct. 1955	GOSG55
1806 2	27 Sep. 1959	STEE59
1807 0, bulldozers at work...changes appalling...one small basin...only bit of water left...desolation almost complete	18 Feb. 1961	HATG61b
1808 pair seen...shallow pools...scattered over 3 or 4 old fields...drainage going on...water area much less extensive	11 Nov. 1962	TITM62
1809 0...ponds almost dried up	13 Jan. 1963	ORDW63c
1810 0	6 Sep. 1963	TITM53
1811 HDFG: 1	13-16 Jan. 1967	(1)
1812 3 seen	21 Jan. 1967	PYLL67
1813 1 seen	12 Mar. 1967	GAUJ67a
1814 HDFG: 2	13,14 Jan. 1969	(1)
1815 several present...ponds begining to dry up	9 Nov. 1969	KAIC69d
1816 HDFG: 5	7 Jan. 1970	(1)
1817 HDFG: 2	13-15 Jan. 1970	(1)
1818 HDFG: 5	7 Aug. 1970	(22)
1819 3 found	20 Sep. 1970	KAIC70d
1820 1 seen	11 Oct. 1970	MULW71e
1821 3 seen	8 Nov. 1970	MULW71b
1822 6 at least	18 Feb. 1971	KAIC71d
1823 6 seen	14 Mar. 1971	MULW71d
1824 7 censused...1 possibly on nest	1 May 1971	KAIC71e
1825 1, at least, heard	30 May 1971	OLSD71a
1826 2 seen	1 June 1971	MULW71
1827 1 seen	10 June 1971	KRIE71
1828 4 seen	28 Aug. 1971	ANON71b
1829 4 seen	(12 Sep. 1971)	MULW71e
1830 3 seen	10 Oct. 1971	MULW71e
1831 several present	12 Oct. 1971	KAIC71b
1832 HDFG: 0	1 Aug. 1972	(2)
1833 HDFG: 0	15 Jan. 1976	(2)
1834 HDFG: 0	4,5 Aug. 1976	(2)
1835 HDFG: 0	13 Jan. 1977	(2)

1836 USFWS: 0
 1837 USFWS: 0
 1838 HDFG: 0
 1839 USFWS: 0
 1840 USFWS: 0
 1841 USFWS: 0
 1842 USFWS: 0
 1843 USFWS: 0
 1844 USFWS: 0
 1845 HDFG: 0
 1846 USFWS: 0
 1847 USFWS: 0
 1848 USFWS: 0
 1849 USFWS: 0
 1850 HDFG: 4
 1851 USFWS: 1
 1852 USFWS: 3
 1853 USFWS: 1
 1854 USFWS: 3
 1855 USFWS: 3
 1856 USFWS: 2
 1857 USFWS: 0
 1858 USFWS: 3
 1859 USFWS: 1
 1860 USFWS: 4
 1861 USFWS: 1
 1862 USFWS: 2
 1863 USFWS: 5
 1864 USFWS: 4
 1865 USFWS: 5
 1866 USFWS: 4
 1867 USFWS: 4
 1868 USFWS: 3
 1869 USFWS: 2
 1870 USFWS: 4
 1871 USFWS: 3
 1872 USFWS: 5
 1873 USFWS: 2
 1874 USFWS: 3
 1875 USFWS: 5

Jan. 1977 (13)
 June 1977 (13)
 27,28 July 1977 (2)
 July 1977 (13)
 Aug. 1977 (13)
 Sep. 1977 (13)
 Oct. 1977 (13)
 Nov. 1977 (13)
 Dec. 1977 (13)
 12,13 Jan 1978 (2)
 Jan. 1978 (13)
 Feb. 1978 (13)
 Mar. 1978 (13)
 Apr. 1978 (13)
 27,28,30 July 1978 (5)
 2 Aug. 1978 (13)
 7 Aug. 1978 (13)
 11 Aug. 1978 (13)
 17 Aug. 1978 (13)
 18 Aug. 1978 (13)
 6 Aug. 1978 (13)
 Oct. 1978 (13)
 7 Nov. 1978 (13)
 9 Nov. 1978 (13)
 14 Nov. 1978 (13)
 15 Nov. 1978 (13)
 1 Dec. 1978 (13)
 2 Dec. 1978 (13)
 4 Dec. 1978 (13)
 5 Dec. 1978 (13)
 6 Dec. 1978 (13)
 7 Dec. 1978 (13)
 8 Dec. 1978 (13)
 9 Dec. 1978 (13)
 11 Dec. 1978 (13)
 12 Dec. 1978 (13)
 13 Dec. 1978 (13)
 14 Dec. 1978 (13)
 15 Dec. 1978 (13)
 18 Dec. 1978 (13)

1876 USFWS: 3
 1877 USFWS: 4
 1878 USFWS: 2
 1879 USFWS: 4
 1880 USFWS: 4
 1881 USFWS: 2
 1882 USFWS: 1
 1883 USFWS: 5
 1884 USFWS: 7
 1885 USFWS: 5
 1886 USFWS: 6
 1887 USFWS: 4
 1888 USFWS: 2
 1889 USFWS: 5
 1890 USFWS: 4
 1891 USFWS: 2
 1892 USFWS: 1
 1893 HDFG: 2
 1894 USFWS: 2
 1895 USFWS: 2
 1896 USFWS: 3
 1897 USFWS: 5
 1898 USFWS: 4
 1899 USFWS: 2
 1900 USFWS: 1
 1901 USFWS: 3
 1902 USFWS: 4
 1903 USFWS: 3
 1904 USFWS: 3
 1905 USFWS: 1
 1906 USFWS: 6
 1907 USFWS: 3
 1908 USFWS: 4
 1909 USFWS: 5
 1910 USFWS: 2
 1911 USFWS: 2
 1912 USFWS: 6
 1913 USFWS: 6
 1914 USFWS: 7
 1915 USFWS: 5

19 Dec. 1978 (13)
 20 Dec. 1978 (13)
 21 Dec. 1978 (13)
 24 Dec. 1978 (13)
 26 Dec. 1978 (13)
 27 Dec. 1978 (13)
 28 Dec. 1978 (13)
 29 Dec. 1978 (13)
 2 Jan. 1979 (13)
 3 Jan. 1979 (13)
 4 Jan. 1979 (13)
 5 Jan. 1979 (13)
 8 Jan. 1979 (13)
 9 Jan. 1979 (13)
 10 Jan. 1979 (13)
 12 Jan. 1979 (13)
 14 Jan. 1979 (13)
 15,16,20 Jan. 1979 (5)
 15 Jan. 1979 (13)
 16 Jan. 1979 (13)
 17 Jan. 1979 (13)
 18 Jan. 1979 (13)
 19 Jan. 1979 (13)
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 22 Jan. 1979 (13)
 23 Jan. 1979 (13)
 24 Jan. 1979 (13)
 25 Jan. 1979 (13)
 26 Jan. 1979 (13)
 31 Jan. 1979 (13)
 1 Feb. 1979 (13)
 2 Feb. 1979 (13)
 5 Feb. 1979 (13)
 6 Feb. 1979 (13)
 7 Feb. 1979 (13)
 8 Feb. 1979 (13)
 9 Feb. 1979 (13)
 12 Feb. 1979 (13)
 13 Feb. 1979 (13)
 14 Feb. 1979 (13)

1916 USFWS: 6
 1917 USFWS: 3
 1918 USFWS: 3
 1919 USFWS: 2
 1920 USFWS: 2
 1921 USFWS: 5
 1922 USFWS: 3
 1923 USFWS: 5
 1924 USFWS: 3
 1925 USFWS: 5
 1926 USFWS: 2
 1927 USFWS: 6
 1928 USFWS: 2
 1929 USFWS: 0
 1930 USFWS: 2
 1931 USFWS: 1
 1932 USFWS: 2
 1933 USFWS: 1
 1934 USFWS: 0
 1935 USFWS: 2
 1936 USFWS: 3
 1937 USFWS: 2
 1938 USFWS: 0
 1939 USFWS: 1
 1940 USFWS: 3
 1941 USFWS: 6
 1942 USFWS: 3
 1943 USFWS: 0
 1944 HDFG: 2
 1945 USFWS: 3
 1946 USFWS: 6
 1947 USFWS: 2
 1948 USFWS: 6
 1949 USFWS: 1
 1950 USFWS: 0
 1951 USFWS: present
 1952 HDFG: 2
 1953 4 seen
 1953aUSFWS: 10, ave. daily use

15 Feb. 1979 (13)
 18 Feb. 1979 (13)
 21 Feb. 1979 (13)
 22 Feb. 1979 (13)
 23 Feb. 1979 (13)
 26 Feb. 1979 (13)
 27 Feb. 1979 (13)
 2 Mar. 1979 (13)
 3 Mar. 1979 (13)
 5 Mar. 1979 (13)
 6 Mar. 1979 (13)
 7 Mar. 1979 (13)
 9 Mar. 1979 (13)
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 16 Mar. 1979 (13)
 18 Mar. 1979 (13)
 20 Mar. 1979 (13)
 22 Mar. 1979 (13)
 26 Mar. 1979 (13)
 31 Mar. 1979 (13)
 3 Apr. 1979 (13)
 13 Apr. 1979 (13)
 18 Apr. 1979 (13)
 May 1979 (13)
 1,2 Aug. 1979 (5)
 10 Sep. 1979 (13)
 11 Sep. 1979 (13)
 13 Sep. 1979 (13)
 20 Sep. 1979 (13)
 24 Sep. 1979 (13)
 Oct. 1979 (13)
 Nov. 1979 (13)
 14,15,16 Jan. 1980 (5)
 11 Jan. 1981 HARK81
 15 Nov.-15 Dec.1981(13)

1953bUSFWS: 12, ave. daily use	16 Dec. 1981-	(13)
	15 Jan. 1982	
1953cUSFWS: 4, ave. daily use	16 Jan.-15 Feb.1982	(13)
	1982	
1953dUSFWS: not censused	16 Feb.-31 Mar.1982	(13)
1953eUSFWS: 15, ave. daily use	April 1982	(13)
1953fUSFWS: 0, ave. daily use	May 1982	(13)
1953gUSFWS: 2, ave. daily use	June 1982	(13)

Kahuku (Punamano) Pond(s) (now in James Campbell National Wildlife Refuge)

1954 HDFG: 1	8 Aug. 1973	(1)
1955 HDFG: 1	1-5 Aug. 1974	(1)
1956 HDFG: 0	1 Aug. 1975	(1)
1957 USFWS: 0	Nov. 1975	(13)
1958 HDFG: 2	15 Jan. 1976	(2)
1959 USFWS: 0	Jan. 1976	(13)
1960 HDFG: 0	4,5 Aug. 1976	(2)
1961 HDFG: 0	13 Jan. 1977	(2)
1962 USFWS: 0	Jan. 1977	(13)
1963 USFWS: 0	June 1977	(13)
1964 USFWS: 7	28 July 1977	(13)
1965 USFWS: 0	Aug. 1977	(13)
1966 USFWS: 0	Nov. 1977	(13)
1967 HDFG: 0	12,13 Jan. 1978	(2)
1968 USFWS: 0	Jan. 1978	(13)
1969 USFWS: 2	15 Mar. 1978	(13)
1970 USFWS: 0	Apr. 1978	(13)
1971 HDFG: 0	27,28,30 July 1978	(5)
1972 USFWS: 0	Aug. 1978	(13)
1973 USFWS: 0	Oct. 1978	(13)
1974 USFWS: 0	Nov. 1978	(13)
1975 USFWS: 1	11 Dec. 1978	(13)
1976 USFWS: 0	15 Jan. 1979	(13)
1977 USFWS: 2	19 Jan. 1979	(13)
1978 HDFG: 0	15,16,20 Jan. 1979	(5)
1979 USFWS: 0	12 Feb. 1979	(13)
1980 USFWS: 1	3 Mar. 1979	(13)
1981 HDFG: 0	1,2 Aug. 1979	(5)
1982 HDFG: 4	14,15,16 Jan. 1980	(5)

1983 USFWS; 0
1983aUSFWS: 0, ave. daily use

Nov. 1980 (13)
16 Dec. 1981 - (13)
15 Jan. 1982

Kahuku Airstrip Area

1983bHDFG: 0
1983cHDFG: 0
1983dHDFG: 0

15 Jan. 1976 (2)
13 Jan. 1977 (2)
15,16,20 Jan. 1979 (2)

Kahuku (?Lowe, ?Amorient) Aquafarm

1984 HDFG: 0
1985 HDFG: 0

15,16,20 Jan. 1979 (5)
14-16 Jan. 1980 (5)

Kawela (Corn Fields)

1986 HDFG: 0

1,2 Aug. 1979 (5)

Kualoa Pond

1987 HDFG: 0
1988 HDFG: 0
1989 HDFG: 0
1990 HDFG: 0
1991 HDFG: 0
1992 HDFG: 0
1993 HDFG: 0
1994 HDFG: 0
1995 HDFG: 0

1 Aug. 1975 (2)
15 Jan. 1976 (2)
4,5 Aug. 1976 (2)
27,28 July 1977 (2)
12,13 Jan. 1978 (2)
27,28,30 July 1978 (5)
15,16,20 Jan. 1979 (5)
1,2 Aug. 1979 (5)
14-16 Jan. 1980 (5)

Kuilima Sewage Pond

1996 HDFG: 0
1997 HDFG: 0
1998 HDFG: 0
1999 HDFG: 0
2000 HDFG: 0
2001 HDFG: 0
2002 HDFG: 2

1 Aug. 1975 (2)
15 Jan. 1976 (2)
4,5 Aug. 1976 (2)
27,28 July 1977 (2)
12,13 Jan. 1978 (2)
27,28,30 July 1978 (5)
15,16,20 Jan. 1979 (5)

2003 HDFG: 0	1,2 Aug. 1979	(5)
2004 HDFG: 0	14-16 Jan. 1980	(5)
Kuilima Swamp		
2005 HDFG: 0	13 Jan. 1977	(2)
Kuilima Golf Course Pond		
2006 HDFG: 0	13 Jan. 1977	(2)
Laie		
2007 2 seen	18 Nov. 1961	CARR62
2008 HDFG: 1	13,14 Jan. 1966	(1)
Laie Prawn Farm		
2009 HDFG: 0	1,2 Aug. 1979	(5)
2010 HDFG: 3	14-16 Jan. 1980	(5)
Lowe (Amorient) Aquafarm		
2011 HDFG: 0	1,2 Aug. 1979	(5)
2012 HDFG: 0	14-16 Jan. 1980	(5)
Punahoolopa Pond (now in James Campbell National Wildlife Refuge)		
2013 HDFG: 1	27,28 July 1977	(2)
2014 Shallenberger: found 4...almost certainly an underestimate of actual numbers present	(1977)	(3)
2015 HDFG: 1	12,13 Jan. 1978	(2)
2016 USFWS: 4	22 Feb. 1978	(13)
2017 HDFG: 0	27,28,30 July 1978	(5)
2018 HDFG: 0	15,16,20 Jan. 1979	(5)
2019 HDFG: 0	1,2 Aug. 1979	(5)
2020 HDFG: 3	14-16 Jan. 1980	(5)

HAUULA

Ku Tree Reservoir

2021 HDFG: 0	15,16,20 Jan. 1979	(5)
2022 HDFG: 0	1,2 Aug. 1979	(5)
2023 HDFG: 0	31 July, 1 Aug. 1980	(5)
2024 HDFG: 0	12 Jan. 1981	(5)
2025 to be excluded from future censuses due to non-use	to begin July 1981	(5)

Opaeula Reservoir

2026 HDFG: 0	12 Jan. 1981	(5)
2027 HDFG: to be included in future censuses due to recent waterbird sightings	to begin July 1981	(5)

Wahiawa Reservoir

2028 HDFG: 0	15,16,20 Jan. 1979	(5)
2029 HDFG: 0	1,2 Aug. 1979	(5)
2030 to be excluded from future censuses due to non-use	to begin July 1981	(5)

KAHANA

Huilua Fishpond (Kahana Valley)

2031 2 seen	13 Feb. 1955	PYLL55
2032 several seen	23 Sep. 1956	HATG56
2033 1 censused	24 July 1968	(1)
2034 6 seen	26 Oct. 1968	DONW69a
2035 HDFG: 0	1 Aug. 1975	(1)
2036 HDFG: 0	15 Jan. 1976	(2)
2037 HDFG: 0	4,5 Aug. 1976	(2)
2038 HDFG: 0	13 Jan. 1977	(2)
2039 HDFG: 0	27,28 July 1977	(2)
2040 HDFG: 0	12,13 Jan. 1978	(2)
2041 HDFG: 0	15,16,20 Jan. 1979	(5)
2042 HDFG: 0	1,2 Aug. 1979	(5)
2043 HDFG: 0	14-16 Jan. 1980	(5)
2044 HDFG: 0	31 July, 1 Aug. 1980	(5)

2045 to be excluded from future censuses due to non-use	to begin July 1981	(5)	
Kaawa Valley Wetland			
2046 Shallenberger: 1 seen on May 7 and July 31 surveys... marginal habitat	(1977)	(3)	
Kahana Stream			
2047 2 seen	13 Jan. 1952	GRER52	
2048 6 seen	18 Jan. 1953	ANON53b	
2049 3 seen	6 Sep. 1953	TITM53	
2050 2 seen	22 Nov. 1953	HATG54	
2051 1, at least, seen	9 Oct. 1955	PYLR55a	
2052 1 or 2 seen	23 Oct. 1955	GOSG55	
2053 3 sighted	13 Jan. 1957	ROCR57a	
2054 2 seen	28 Aug. 1957	STEE57	
2055 present	25 Jan. 1959	MACM59	
2056 none seen	10 Jan. 1960	STEF60	
2057 1 seen	11 Sep. 1960	ANON60c	
2058 2 seen	1 Jan. 1968	ORER68	
2059 HDFG: 6	8-10 Jan. 1968	(1)	
2060 Shallenberger: observed and/or heard maximum of 3 in the partially flooded pasturelands.	(1977)	(3)	
Punaluu Fish Farms			
2061 HDFG: 0	13 Jan. 1977	(2)	
WAIPAHAU			
Apokaa			
2062 HDFG: 3	1-5 Aug. 1974	(1)	
2063 HDFG: 1	1 Aug. 1975	(1)	
2064 HDFG: 1	15 Jan. 1976	(2)	
2065 HDFG: 1	4,5 Aug. 1976	(2)	
2066 HDFG: 1	13 Jan. 1977	(2)	
2067 HDFG: 1	27,28 July 1977	(2)	
2068 HDFG: 0	12,13 Jan. 1978	(2)	

2069 HDFG: 0	27,28,30 July 1978	(5)
2070 HDFG: 0	15,16,20 Jan. 1979	(5)
2071 HDFG: 0	1,2 Aug. 1979	(5)
2072 HDFG: 0	14-16 Jan. 1980	(5)

Leeward College Taro Field(s)

2073 HDFG: 0	1 Aug. 1975	(2)
2074 HDFG: 0	15 Jan. 1976	(2)

Loko Eo

2075 HDFG: 0	4,5 Aug. 1976	(2)
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Pearl Harbor National Wildlife Refuge

2075aUSFWS: 2	Oct. - Dec. 1980	(13)
2075bUSFWS: 2	Jan. - Mar. 1981	(13)
2075cUSFWS: 2	Apr. - June 1981	(13)
2075dUSFWS: 2	July - Sep. 1981	(13)

Pearl City (Waiawa) Unit, Pearl Harbor National Wildlife Refuge

2076 HDFG: 0	1 Aug. 1975	(1)
2077 HDFG: 0	15 Jan. 1976	(2)
2078 USFWS: 0	Jan. 1976	(13)
2079 USFWS: 0	Feb. 1976	(13)
2080 USFWS: 0	May 1976	(13)
2081 USFWS: 0	June 1976	(13)
2082 USFWS: 0	July 1976	(13)
2083 HDFG: 0	4,5 Aug. 1976	(2)
2084 USFWS: 0	Aug. 1976	(13)
2085 USFWS: 0	Sep. 1976	(13)
2086 USFWS: 0	Oct. 1976	(13)
2087 USFWS: 0	Nov. 1976	(13)
2088 USFWS: 0	Dec. 1976	(13)
2089 HDFG: 0	13 Jan. 1977	(2)
2090 USFWS: 0	Jan. 1977	(13)
2091 USFWS: 0	Feb. 1977	(13)
2092 USFWS: 0	Mar. 1977	(13)

2093 USFWS: 0
 2094 USFWS: 0
 2095 USFWS: 0
 2096 HDFG: 0
 2097 USFWS: 0
 2098 USFWS: 0
 2099 USFWS: 0
 2100 USFWS: 0
 2101 USFWS: 0
 2101aShallenberger: seen
 2102 HDFG: 0
 2103 USFWS: 0
 2104 USFWS: 0
 2105 USFWS: 0
 2106 USFWS: 0
 2107 USFWS: 0
 2108 USFWS: 0
 2109 HDFG: 0
 2110 USFWS: 0
 2111 USFWS: 0
 2112 USFWS: 0
 2113 USFWS: 0
 2114 USFWS: 0
 2115 USFWS: 0
 2116 HDFG: 0
 2117 USFWS: 0
 2118 USFWS: 0
 2119 HDFG: 0
 2120 USFWS: 0
 2121 USFWS: 0
 2122 USFWS: 0
 2123 USFWS: 0
 2124 HDFG: 0
 2125 USFWS: 0
 2125aUSFWS: 0, ave. daily use
 2125bUSFWS: 0, ave. daily use

 2125cUSFWS: 0, ave. daily use
 2125dUSFWS: not censused
 2125eUSFWS: 0, ave. daily use

Apr. 1977 (13)
 May 1977 (13)
 June 1977 (13)
 27,28 July 1977 (2)
 July 1977 (13)
 Aug. 1977 (13)
 Oct. 1977 (13)
 Nov. 1977 (13)
 Dec. 1977 (13)
 (1977) (45)
 12,13 Jan. 1978 (2)
 Jan. 1978 (13)
 Feb. 1978 (13)
 Mar. 1978 (13)
 Apr. 1978 (13)
 May 1978 (13)
 June 1978 (13)
 27,28,30 July 1978 (5)
 July 1978 (13)
 Aug. 1978 (13)
 Sep. 1978 (13)
 Oct. 1978 (13)
 Nov. 1978 (13)
 Dec. 1978 (13)
 15,16,20 Jan. 1979 (5)
 Jan. 1979 (13)
 Feb. 1979 (13)
 1,2 Aug. 1979 (5)
 Sep. 1979 (13)
 Oct. 1979 (13)
 Nov. 1979 (13)
 Dec. 1979 (13)
 14-16 Jan. 1980 (5)
 Jan. 1980 (13)
 15 Nov.-15 Dec.1981 (13)
 16 Dec. 1981 - (13)
 15 Jan. 1982
 16 Jan.-15 Feb.1982 (13)
 16 Feb.-31 Mar.1982 (13)
 Apr. 1982 (13)

2125fUSFWS: 0, ave. daily use	May 1982	(13)
2125gUSFWS: 0, ave. daily use	June 1982	(13)
Sumida (Watercress) Farm, Waiau		
2126 nesting and feeding in taro patches	21 May 1961	(29)
2127 in the same number as previous visits	25 June 1961	ANON61c
2128 4 seen	10 Sep. 1961	ROCR61
2129 HDFG: 0	1 Aug. 1975	(1)
2130 HDFG: 0	15 Jan. 1976	(2)
2131 HDFG: 0	4,5 Aug. 1976	(2)
Ted Makalena Golf Course		
2132 HDFG: 0	15 Jan. 1976	(2)
Waikele		
2133 HDFG: 0	1 Aug. 1975	(2)
2134 HDFG: 0	15 Jan. 1976	(2)
2135 HDFG: 0	4,5 Aug. 1976	(2)
2136 HDFG: 0	13 Jan. 1977	(2)
2137 HDFG: 0	27,28 July 1977	(2)
2138 HDFG: 0	12,13 Jan. 1978	(2)
2139 HDFG: 0	15,16,20 Jan. 1979	(5)
2140 HDFG: 0	1,2 Aug. 1979	(5)
2141 HDFG: 0	14-16 Jan. 1980	(5)
Waipahu - Flats - Dump		
2142 2 seen (Flats)	22 Dec. (1944)	COGH45
2143 2 seen (Flats)	25 Dec. (1944)	COGH45
2144 HDFG: 0	1 Aug. 1975	(2)
2145 HDFG: 0	15 Jan. 1976	(2)
2146 HDFG: 0	4,5 Aug. 1976	(2)
2147 HDFG: 0	13 Jan. 1977	(2)
2148 HDFG: 0	27,28 July 1977	(2)
2149 HDFG: 0	12,13 Jan. 1978	(2)
2150 HDFG: 0	27,28,30 July 1978	(5)
2151 HDFG: 0	15,16,20 Jan. 1979	(5)

2152 HDFG: 0
2153 HDFG: 0

1,2 Aug. 1979 (5)
14-16 Jan. 1980 (5)

Waipio Settlement Basins

2154 0 reported
2155 HDFG: 0
2156 HDFG: 0
2157 HDFG: 0
2158 HDFG: 0
2159 HDFG: 0

12 Sep. 1971 MULW71e
1 Aug. 1975 (2)
4,5 Aug. 1976 (2)
15,16,20 Jan. 1979 (5)
1,2 Aug. 1979 (5)
14-16 Jan. 1980 (5)

Waipio Sewage

2160 HDFG: 0
2161 HDFG: 0
2162 HDFG: 0
2163 HDFG: 0
2164 HDFG: 0

1 Aug. 1975 (2)
4,5 Aug. 1976 (2)
15,16,20 Jan. 1979 (5)
1,2 Aug. 1979 (5)
14-16 Jan. 1980 (5)

Walker's Bay

2165 HDFG: 0
2166 HDFG: 0
2167 HDFG: 0
2168 HDFG: 0
2169 HDFG: 0
2170 HDFG: 0
2171 HDFG: 0
2172 HDFG: 0
2173 HDFG: 0
2174 HDFG: 0

1 Aug. 1975 (1)
15 Jan. 1976 (2)
4,5 Aug. 1976 (2)
13 Jan. 1977 (2)
27,28 July 1977 (2)
12,13 Jan. 1978 (2)
27,28,30 July 1978 (5)
15,16,20 Jan. 1979 (5)
1,2 Aug. 1979 (5)
14-16 Jan. 1980 (5)

KANEOHE

Heeia - Meadows - Marsh - Wetlands - Fishpond

2175 present (Fishpond)
2176 HDFG: 0 (Fishpond)
2177 HDFG: 0

(June 1975) GAGW75
15 Jan. 1976 (2)
4,5 Aug. 1976 (2)

2178 Shallenberger: minimum of 15 seen on 7 May and records by sound alone suggest an even greater number were present... less than half of that number were counted on later trips 24 and 28 August (Heeia Marsh)	(1977)	(3)
2179 HDFG: 0 (Wetlands)	12,13 Jan. 1978	(2)
2180 HDFG: 0 (Pond)	27,28,30 July 1978	(5)
2181 HDFG: 0 (Meadows)	27,28,30 July 1978	(5)
2182 HDFG: 0 (Wetlands)	15,16,20 Jan. 1979	(2)
2183 HDFG: 0 (Marsh)	1,2 Aug. 1979	(5)
2184 HDFG: 0 (Wetlands)	14-16 Jan. 1980	(2)

Hoomaluleia Park

2185 HDFG: to be included in future censuses due to recent waterbird sightings	to begin July 1981	(5)
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Kahaluu Wetland - Pond

2186 HDFG: 0	4,5 Aug. 1976	(2)
2187 Shallenberger: 2 flushed and others may have been missed on 8 May survey	(1977)	(3)

Kane Kai, Kaneohe Bay

2188 HDFG: to be included in future censuses due to recent waterbird sightings	to begin July 1981	(5)
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MOKUPU

Holiday Mart Ditch

2189 HDFG: 0	15 Jan. 1976	(2)
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Kaelepulu Pond (now Enchanted Lake)

2190 none seen	16 Jan. 1938	(20)
2191 1 seen...lake	13 Nov. 1938	(20)
2192 ca. 275 acres, ca. 1,300 yards across; seen, nest found (above bridge)	30 Apr. 1939	(20)
2193 seen, nest found (stream)	24 May 1939	(20)

2194 4, Christmas Count	28 Dec. 1952	ANON53a
2195 75+ (?coots) (pond mostly dry)	6 Sep. 1953	TITM53
2196 3, Christmas Count	26 Dec. 1953	ANON54a
2197 2 seen in canal mauka of Campos Ranch	16,17 July 1965	DONW65b
2198 1 seen	16,17 July 1965	DONW65b
2199 1 seen in a small marsh on Campos Ranch makai of canal	16,17 July 1965	DONW65b
2200 USFWS; 2	26 Nov. 1965	(12)
2201 HDFG: 4 (at outlet)	24 July 1968	(1)
2202 HDFG: 2	24 July 1968	(1)
2203 HDFG: 4	27 July 1971	(1)
2204 HDFG: 0	1 Aug. 1975	(2)
2205 HDFG: 3	15 Jan. 1976	(2)
2206 HDFG: 0	4,5 Aug. 1976	(2)
2207 HDFG: 0	13 Jan. 1977	(2)
2208 HDFG: 0	27,28 July 1977	(2)
2209 Shallenberger: observed only 1 on surveys 3 June 15 July and 24 August	(1977)	(3)
2210 HDFG: 0	12,13 Jan. 1978	(2)
2211 HDFG: 0	27,28,30 July 1978	(5)
2212 HDFG: 0	15,16,20 Jan. 1979	(5)
2213 HDFG: 0	1,2 Aug. 1979	(5)

Kaelepulu Flood Control

2214 HDFG: 0	27,28 July 1977	(2)
2215 HDFG: 0	12,13 Jan. 1978	(2)
2216 HDFG: 0	15,16,20 Jan. 1979	(5)
2217 HDFG: 4	1,2 Aug. 1979	(5)

Kaelepulu Canal - Kailua

2218 Richards: 2-3 seen, all in 1st half-mile on a boat trip upstream draining Kaelepulu swamp from mouth to radio station and return	2 Jan. 1951	(30)
2219 HDFG: 2 (Kailua ditch)	27 July 1971	(1)
2220 15 incl. 4 large young	13 Jan. 1977	PYLR77
2221 adults and full grown immatures seen regularly	Feb. 1977	PYLR77
2222 2 adults with 2 chicks each	22 Sep. 1977	PYLR78b
2223 7, Christmas Count	19 Dec. 1976	PYLR77
2224 one to several still being seen	Mar. - July 1977	MULM77

Kailua - Wigwam Store area

2225 1 seen
2226 HDFG: 0

8 Nov. 1970 MULW71b
1 Aug. 1975 (2)

Kaneohe Marine Corps Air Station Ponds

2227 1, Christmas Count
2228 4, Christmas Count
2229 2, Christmas Count
2230 2, Christmas Count
2231 HDFG: 0
2232 HDFG: 0
2233 HDFG: 0
2234 HDFG: 0

21 Dec. 1947 HATG48c
28 Dec. 1952 ANON53a
23 Dec. 1956 HATG57
22 Dec. 1956 ANON58
1 Aug. 1975 (1)
15 Jan. 1976 (2)
4,5 Aug. 1976 (2)
13 Jan. 1977 (2)

Nuupia Pond(s) (Kaneohe Marine Corps Air Station)

2235 HDFG: 0
2236 HDFG: 0
2237 HDFG: 0
2238 HDFG: 0
2239 HDFG: 0
2240 HDFG: 0

27,28 July 1977 (2)
12,13 Jan. 1978 (2)
27,28,30 July 1978 (5)
15,16,20 Jan. 1979 (5)
1,2 Aug. 1979 (5)
14 -16 Jan. 1980 (5)

115

Kaneohe Marine Corps Air Station Sewage Lagoon

2241 HDFG: 0
2242 HDFG: 0
2243 HDFG: 0
2244 HDFG: 0

12,13 Jan. 1978 (2)
27,28,30 July 1978 (5)
1,2 Aug. 1979 (5)
14 -16 Jan. 1980 (5)

Kawainui - Pond - Swamp

2245 Banko: Wetmore collected 1 specimen
2246 plentiful
2247 a few seen
2248 1, Christmas Count
2249 2, Christmas Count

20 Aug. 1923 (10)
11 Mar. 1934 (20)
9 Feb. 1947 KLER47
31 Dec. 1961 ANON62
23 Dec. 1962 ANON62

2250 5 total	13 Jan. 1963	ORDW63c
2251 several seen	10 Mar. 1963	ORDW63d
2252 3, Christmas Count	29 Dec. 1963	ANON64
2253 HDFG: 1	15 Jan. 1964	(1)
2254 10, Christmas Count	27 Dec. 1964	ANON65a
2255 HDFG: 11	14 Jan. 1965	(1)
2256 1 sighted (back edge)	10 Oct. 1965	FRIC66
2257 7, Christmas Count	2 Jan. 1966	ANON66a
2258 HDFG: 11	13,14 Jan. 1966	(1)
2259 1 seen in open marsh on NE side	5 June (1966)	DONW67a
2260 several seen on the quarry side	(7 Nov. 1966)	ORDW67
2261 2, Christmas Count	26 Dec. 1966	ANON67
2262 USFWS: breeding residents in unknown numbers	(1966)	(11)
2263 2	13-16 Jan. 1967	(1)
2264 1, Christmas Count	31 Dec. 1967	ANON68
2265 HDFG: 2	8-10 Jan. 1968	(1)
2266 6, Christmas Count	29 Dec. 1968	ANON69a
2267 4 seen	June 1969	YUEH69
2268 1, Christmas Count	28 Dec. 1969	ANON70b
2269 HDFG: 1	7 Jan. 1970	(1)
2270 HDFG: 1	7 Aug. 1970	(22)
2271 2, Christmas Count	27 Dec. 1970	MULW71f
2272 HDFG: 1	27 July 1971	(1)
2273 HDFG: 1	8 Aug. 1973	(1)
2274 1 seen each day	12,13 Mar. 1975	ANON75a
2275 HDFG: 3	1 Aug. 1975	(1)
2276 present after fire in swamp	9? Aug. 1975	ANON75b
2277 HDFG: 0	15 Jan. 1976	(2)
2278 HDFG: 5	4,5 Aug. 1976	(2)
2279 HDFG: 4	13 Jan. 1977	(2)
2280 HDFG: 3	27,28 July 1977	(2)
2281 1 seen	4 Dec. 1977	PYLR78c
2282 Shallenberbger: our maximum count on this survey (1,20,23, 28 May; 15 Aug.) was 7, but we have counted as many as 12 within the last 3 years...nests found in both bulrush and cattails	(1977)	(3)
2283 HDFG: 1	12,13 Jan. 1978	(2)
2284 2 present	22 Jan. 1978	PYLR78c
2285 HDFG: 1 seen	27,28,30 July 1978	(5)
2286 HDFG: 2	15,16,20 Jan. 1979	(5)

2287 HDFG: 2, from Kridler's Rock	1,2 Aug. 1979	(5)
2288 seen along Quarry Road	(20 Nov. 1979)	SHAR78b
2289 pair seen	(20 Nov. 1979)	SHAR78b
2290 1 seen	4 Dec. 1979	SHAR78b
2291 HDFG: 2	14,15,16 Jan. 1980	(5)
2292 HDFG: 3, below heiau	14,15,16 Jan. 1980	(5)

Kawainui Berm

2293 HDFG: 0	27,28,30 July 1978	(5)
2294 HDFG: 0	1,2 Aug. 1979	(5)
2295 HDFG: 2	14-16 Jan. 1980	(5)

Hamakua Ditch (Drive) - Maunawili Stream

2296 HDFG: 14	27,28,30 July 1978	(5)
2297 HDFG: 10	15,16,20 Jan. 1979	(5)
2298 HDFG: 7	1,2 Aug. 1979	(5)
2299 HDFG: 8	14-16 Jan. 1980	(5)

Hamakua Drive (Ditch) - Canal - Flooded Pasture

2300 HDFG: 0	4,5 Aug. 1976	(2)
2301 HDFG: 15	13 Jan. 1977	(2)
2302 HDFG: 0	27,28 July 1977	(2)
2303 Shallenberger: we counted a maximum of seven adult and five young birds in several trips (1,20,23,28 May; 15 Aug.) ...at least three broods were produced this spring and summer within the Canal... / Hamakua Drive Canal, Kawai Nui Marsh area	(1977)	(3)
2304 HDFG: 5	12,13 Jan. 1978	(2)
2305 several are still being seen	winter of 1977-1978	PYLR78c
2306 14 present	6 May 1978	PYLR78d
2307 2 pairs raised 4 chicks each	Apr., May 1978	PYLR78d
2308 18, including new brood of 4 chicks	3 weeks in July 1978	PYLR78d
2309 HDFG: 0	27,28,30 July 1978	(5)
2310 HDFG: 2	15,16,20 Jan. 1979	(5)
2311 4 adults plus 3 young	11 Feb. 1979	PYLR79b
2312 HDFG: 0	1,2 Aug. 1979	(5)

2313 HDFG: 4	14-16 Jan. 1980	(5)
2313a Nagata: minor fluctuations in population...indicated a stable population...appeared to breed year around...second, third clutches and renests were observed...nested around the edges of ponds located centrally in the meadow when marsh-like...along the canal edge...with greater exposure to human disturbance when the ponds and meadows were dry...nesting success was 25% for 12 of 13 nests studied...predation by mongoose appeared to be the major cause of nest loss / Hamakua marsh-pasture (3.2 ha)	Feb. 1979 - Jan.	(52)

Lanikai

2314 HDFG: 0	27,28 July 1977	(2)
2315 3, Christmas Count	18 Dec. 1977	PYLR78a

Olomana Saddle City

2316 HDFG: 5	24 July 1968	(1)
2317 HDFG: 0	1,2 Aug. 1979	(5)

PUULOLOA

Honouliuli (Prawn) Ponds

2318 Shallenberger: Montgomery reported nest	early Feb. 1974	(27)
2319 Shallenberger: located nest with 7 eggs in third (of 4) 1-2 acre prawn ponds bordering West Loch	13 Feb. 1974	(27)
2320 Shallenberger: saw adults with 4 young	6,17,19 Mar. 1974	(27)
2321 HDFG: 0	1 Aug. 1975	(1)
2322 HDFG: 0	15 Jan. 1976	(2)
2323 HDFG: 0	4,5 Aug. 1976	(2)
2324 HDFG: 0	27,28 July 1977	(2)
2325 HDFG: 0	12,13 Jan. 1978	(2)
2326 HDFG: 0	27,28,30 July 1978	(5)
2327 HDFG: 0	15,16,20 Jan. 1979	(5)
2328 HDFG: 0	1,2 Aug. 1979	(5)
2329 HDFG: 0	14-16 Jan. 1980	(5)

Fort Kamehameha

2330 HDFG: 0	1 Aug. 1975	(2)
2331 HDFG: 0	15 Jan. 1976	(2)
2332 HDFG: 0	4,5 Aug. 1976	(2)
2333 HDFG: 0	13 Jan. 1977	(2)
2333aShallenberger: 5 seen near leaking pipe adjacent to old runway	Oct. 1976- Mar.1977	(45)
2334 HDFG: 0	27,28 July 1977	(2)
2335 HDFG: 0	12,13 Jan. 1978	(2)
2336 HDFG: 0	27,28,30 July 1978	(5)
2337 HDFG: 0	15,16,20 Jan. 1979	(5)
2338 HDFG: 0	1,2 Aug. 1979	(5)
2339 HDFG: 0	14-16 Jan. 1980	(5)

West Loch Unit (Honouliuli), Pearl Harbor National Wildlife Refuge

2340 HDFG: 0	1 Aug. 1975	(2)
2341 HDFG: 0	15 Jan. 1976	(2)
2342 USFWS: 0	Jan. 1976	(13)
2343 USFWS: 0	July 1976	(13)
2344 HDFG: 0	4,5 Aug. 1976	(2)
2345 USFWS: 0	Aug. 1976	(13)
2346 USFWS: 2	18 Sep. 1976	(13)
2347 USFWS: 1	21 Sep. 1976	(13)
2348 USFWS: 2	24 Sep. 1976	(13)
2349 USFWS: 0	Oct. 1976	(13)
2350 USFWS: 2	1 Nov. 1976	(13)
2351 USFWS: 2	4 Nov. 1976	(13)
2352 USFWS: 2	11 Nov. 1976	(13)
2353 USFWS: 2	12 Nov. 1976	(13)
2354 USFWS: 1	14 Nov. 1976	(13)
2355 1 seen	14 Nov. (1976)	PYLR77
2356 USFWS: 1	19 Nov. 1976	(13)
2357 USFWS: 2	22 Nov. 1976	(13)
2358 USFWS: 2	2 Dec. 1976	(13)
2359 USFWS: 2	7 Dec. 1976	(13)
2360 USFWS: 2	11 Dec. 1976	(13)
2361 USFWS: 1	14 Dec. 1976	(13)
2362 2 seen	Nov., Dec. (1976)	PYLR77

2363 USFWS: 1
 2364 1 seen
 2365 HDFG: 0
 2366 USFWS: 0
 2367 USFWS: 0
 2368 USFWS: 0
 2369 USFWS: 1
 2370 USFWS: 1
 2371 USFWS: 1
 2372 USFWS: 1
 2373 USFWS: 1
 2374 USFWS: 1
 2375 USFWS: 1
 2376 HDFG: 0
 2377 USFWS: 1
 2378 USFWS: 1
 2379 none seen
 2380 USFWS: 0
 2381 USFWS: 0
 2382 USFWS: 0
 2383 HDFG: 0
 2384 USFWS: 0
 2385 USFWS: 0
 2386 USFWS: 0
 2387 USFWS: 0
 2388 USFWS: 0
 2389 USFWS: 0
 2390 HDFG: 0
 2391 USFWS: 0
 2392 USFWS: 0
 2393 USFWS: 0
 2394 USFWS: 0
 2395 USFWS: 0
 2396 USFWS: 0
 2397 HDFG: 0
 2398 USFWS: 0
 2399 USFWS: 0
 2400 USFWS: 0
 2401 HDFG: 0
 2402 USFWS: 0

10 Jan. 1977 (13)
 10 Jan. 1977 PYLR77
 13 Jan. 1977 (2)
 Feb. 1977 (13)
 Mar. 1977 (13)
 Apr. 1977 (13)
 19 May 1977 (13)
 10 June 1977 (13)
 30 June 1977 (13)
 1 July 1977 (13)
 18 July 1977 (13)
 20 July 1977 (13)
 27 July 1977 (13)
 27,28 July 1977 (2)
 27 Aug. 1977 (13)
 8 Sep. 1977 (13)
 11 Sep. 1977 STEM77
 Oct. 1977 (13)
 Nov. 1977 (13)
 Dec. 1977 (13)
 12,13 Jan. 1978 (2)
 Jan. 1978 (13)
 Feb. 1978 (13)
 Mar. 1978 (13)
 Apr. 1978 (13)
 May 1978 (13)
 June 1978 (13)
 27,28,30 July 1978 (5)
 July 1978 (13)
 Aug. 1978 (13)
 Sep. 1978 (13)
 Oct. 1978 (13)
 Nov. 1978 (13)
 Dec. 1978 (13)
 15,16,20 Jan. 1979 (5)
 Jan. 1979 (13)
 Feb. 1979 (13)
 Mar. 1979 (13)
 1,2 Aug. 1979 (5)
 Sep. 1979 (13)

2403 USFWS: 0
 2404 USFWS: 0
 2405 USFWS: 0
 2406 HDFG: 0
 2406aUSFWS: 4 adults + 5 young, ave. daily use
 2406bUSFWS: 4, ave. daily use

 2406cUSFWS: 4 adults + 8 young, ave. daily use
 2406dUSFWS: 4 adults + 4 young, ave. daily use
 2406eUSFWS: 5 adults + 4 young, ave. daily use
 2406fUSFWS: 5 adults + 4 young, ave. daily use
 2406gUSFWS: 4 adults + 10 young, ave. daily use

Oct. 1979 (13)
 Nov. 1979 (13)
 Dec. 1979 (13)
 14-16 Jan. 1980 (5)
 15 Nov.-15 Dec.1981 (13)
 16 Dec.1981- (13)
 15 Jan. 1982
 16 Jan.-15 Feb.1982 (13)
 16 Feb.-31 Mar.1982 (13)
 April 1982 (13)
 May 1982 (13)
 June 1982 (13)

Puuloa - Navy - Rifle Range - Ponds

2407 1 seen
 2408 1 seen

28 Oct. 1956 HANC57a
 27 Oct. 1957 SMAM57

Waipio Peninsula Ponds

2409 2 seen
 2410 HDFG: 0
 2411 HDFG: 0
 2412 HDFG: 0
 2413 1 seen...first seen in years
 2414 HDFG: 0
 2415 HDFG: 0
 2416 1 adult, 1 immature seen together

10 Sep. 1967 GAUD67
 15 Jan. 1976 (2)
 13 Jan. 1977 (2)
 27,28 July 1977 (2)
 19 Sep. 1977 PYLR78b
 12,13 Jan. 1978 (2)
 27,28,30 July 1978 (5)
 15 Sep. 1981 PYLR81c

121

HONOLULU

(Ala) Moana Park

2417 small colony...frequent and breed in the open lagoon and
 marshy ground nearby

(1944) MUNG44

Damon Pond(s)

2418 3 seen...Damon Estate, close to the airport...erstwhile
 beauty is gone, along with abundant bird life

12 Oct. 1952 TITM52b

2419 a few seen in old Damon Pond...a sad state	28 Feb. 1954	BOTI54
2420 1 seen	22 Aug. 1954	PEDB54
2421 2 seen	13 Feb. 1955	PYLL55
2422 2 counted	29 Jan. 1956	GOSG56a
2423 none seen	9 Sep. 1956	KOJU56
2424 none seen	26 Jan. 1958	LABA58
2425 none seen...Pond completely filled and the houses are being moved away to make room for the highway	10 Sep. 1960	ANON60b

Diamond Head

2426 Banko: Bryan collected 1 in the crater (playa)	5 Mar. 1907	(10)
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Honolulu

2427 Banko: Flood collected 4 specimens	1894/1895	(10)
2428 Banko: Miller collected 1 specimen	15 June 1903	(10)

McCully Tract

2429 seen on duck ponds by side of streetcar track	16 Mar. 1924	(20)
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Mid-Pacific Country Club

2430 2 seen	7 Jan. 1950	CAMM50
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Moanalua Garden Ponds

2431 seen at the fishponds behind Moanalua Gardens	13 Nov. 1943	JOHE43
2432 6 seen	15 Nov. 1943	ANON44
2433 very frequently found	(1944)	CANH44
2434 4 seen	23 Dec. 1945	PETR46
2435 2 seen	9 July 1950	HATG50c
2436 2 seen	9 Dec. 1950	PETH51
2437 2 seen	11 Apr. 1953	BARD53
2438 1 seen	9 Aug. 1953	ROCR53b
2439 3 seen	23 Aug. 1953	CHAH53
2440 1 seen	27 Sep. 1953	HATG53a
2441 2 seen	25 Oct. 1953	GOSG53

Nuuanu Valley - Reservoir(s)

2442 Banko: Anderson collected 1 specimen
 2443 1 seen
 2444 1, Christmas Count
 2445 3, Christmas Count
 2446 2 adults, 4 young seen
 2447 2 adults, 3 young seen
 2448 4, Christmas Count
 2449 HDFG: 3
 2450 observed
 2451 2 observed
 2452 2 with 3 chicks seen
 2453 1, Christmas Count
 2454 HDFG: 2
 2455 1 seen
 2456 seen
 2457 3, Christmas Count
 2458 1, Christmas Count
 2459 found
 2460 HDFG: 0
 2461 HDFG: 0
 2462 HDFG: 0
 2463 HDFG: 0

22 Dec. 1938 (10)
 30 Aug. 1961 LABA61
 23 Dec. 1962 ANON62
 29 Dec. 1963 ANON64
 9 Feb. 1964 ORDW64a
 8 Mar. 1964 ORDW64e
 27 Dec. 1964 ANON65a
 14 Jan. 1965 (1)
 14 Feb. 1965 ANON65b
 11 Apr. 1965 CONS65
 12 Sep. 1965 KOJU65b
 2 Jan. 1966 ANON66a
 13,14 Jan. 1966 (1)
 5 June (1966) DONW67a
 (17 Nov. 1966) ORDW67
 26 Dec. 1966 ANON67
 28 Dec. 1969 ANON70b
 11 Jan. 1970 ANON70c
 1 Aug. 1975 (2)
 15 Jan. 1976 (2)
 4,5 Aug. 1976 (2)
 13 Jan. 1977 (2)

Nuuanu Valley Reservoir No. 1

2464 Banko: 0
 2465 HDFG: 0
 2466 HDFG: to be excluded from future censuses due to non-use

13 Jan. 1966 (18)
 15,16,20 Jan. 1979 (5)
 to begin July 1981 (5)

Nuuanu Valley Reservoir No. 2

2467 Banko: 2
 2468 Banko: 1 adult with half-grown chick
 2469 Banko: 1 adult with 2/3 grown young
 2470 Banko: 2 adults, 4 young
 2471 Banko: 3 adults, 2, possible 3 immatures
 2472 Banko: supports at least 1 resident breeding pair...
 regular or occasional use by others

13 Jan. 1966 (18)
 20 Apr. 1966 (18)
 21 Apr. 1966 (18)
 22 Apr. 1966 (18)
 1 July 1966 (18)
 (1966) (17)

2473 HDFG: 0
 2474 HDFG: 0
 2475 HDFG: 0
 2476 HDFG: 0
 2477 HDFG: 0
 2478 HDFG: 0
 2479 HDFG: 0

27,28 July 1977 (2)
 12,13 Jan. 1978 (2)
 15,16,20 Jan. 1979 (5)
 1,2 Aug. 1979 (5)
 14-16 Jan. 1980 (5)
 31 July, 1 Aug. 1980 (5)
 12 Jan. 1981 (5)

Nuuanu Valley Reservoir No. 3

2480 Northwood: 3
 2481 Northwood: 3
 2482 Northwood: seen
 2483 Banko: 0
 2484 Banko: occasionally seen...no breeding reported
 2485 USFWS: only occasionally seen
 2486 HDFG: 0
 2487 HDFG: 0
 2488 HDFG: 0
 2489 HDFG: 0
 2490 HDFG: 0
 2491 HDFG: 0

27 Oct. 1940 (20)
 3 Nov. 1940 (20)
 17 Nov. 1940 (20)
 13 Jan. 1966 (18)
 (1966) (17)
 1966 (11)
 27,28 July 1977 (2)
 12,13 Jan. 1978 (2)
 27,28,30 July 1978 (5)
 15,16,20 Jan. 1979 (5)
 1,2 Aug. 1979 (5)
 14-16 Jan. 1980 (5)

Nuuanu Valley Reservoir No. 4

2492 Banko: 0
 2493 HDFG: 0
 2494 HDFG: 0
 2495 HDFG: 0
 2496 HDFG: 0
 2497 HDFG: 0
 2498 HDFG: 0

13 Jan. 1966 (18)
 27,28 July 1977 (2)
 12,13 Jan. 1978 (2)
 27,28,30 July 1978 (5)
 15,16,20 Jan. 1979 (5)
 1,2 Aug. 1979 (5)
 14-16 Jan. 1980 (5)

Kapiolani Boulevard

2499 Woodside: nest found near the Honolulu Seed Co.

(1943) MUNG49b

Keehei Lagoon

2500 HDFG: 0

1 Aug. 1975 (1)

2501 HDFG: 0
 2502 HDFG: 0
 2503 HDFG: 0
 2504 HDFG: 0
 2505 HDFG: 0
 2506 HDFG: 0
 2507 HDFG: 0
 2508 HDFG: 0
 2509 HDFG: 0

15 Jan. 1976 (2)
 4,5 Aug. 1976 (2)
 13 Jan. 1977 (2)
 27,28 July 1977 (2)
 12,13 Jan 1978 (2)
 27,28,30 July 1978 (5)
 15,16,20 Jan. 1979 (5)
 1,2 Aug. 1979 (5)
 14-16 Jan. 1980 (5)

Salt Lake

2510 1 seen
 2511 1 seen
 2512 HDFG: 0
 2513 HDFG: 0
 2514 HDFG: 0
 2515 HDFG: 0
 2516 HDFG: 0
 2517 HDFG: 0
 2518 HDFG: 0
 2519 HDFG: 0
 2520 HDFG: 0
 2521 HDFG: 0

23 Mar.-14 Apr.1958 EASW58
 (1958) HAWA73
 1 Aug. 1975 (1)
 15 Jan. 1976 (2)
 4,5 Aug. 1976 (2)
 13 Jan. 1977 (2)
 27,28 July 1977 (2)
 12,13 Jan 1978 (2)
 27,28,30 July 1978 (5)
 15,16,20 Jan. 1979 (5)
 1,2 Aug. 1979 (5)
 14-16 Jan. 1980 (5)

125

KOKO HEAD

Bellows Air Force Base

2522 2 seen
 2523 1, Christmas Count
 2524 3, Christmas Count
 2525 2 seen
 2526 2, Christmas Count
 2527 0, Christmas Count...vegetation cleared from canal where
 gallinule invariably found
 2528 HDFG: 1
 2529 HDFG: 2
 2530 HDFG: 5
 2531 HDFG: 3

9 Feb. 1947 KLER47
 28 Dec. 1952 ANON53a
 26 Dec. 1954 ANON55
 28 Apr. 1957 ROCR57b
 22 Dec. 1957 ANON58
 21 Dec. 1958 ANON59
 14-18 Jan. 1963 (1)
 15 Jan. 1964 (1)
 14 Jan. 1965 (1)
 13-16 Jan. 1967 (1)

2532 HDFG: 3
 2533 HDFG: 5
 2534 HDFG: 3
 2535 HDFG: 0
 2536 HDFG: 1
 2537 HDFG: 1
 2538 HDFG: 0
 2539 HDFG: 0
 2540 HDFG: 1
 2541 HDFG: 0
 2542 HDFG: 0
 2543 HDFG: 0
 2544 HDFG: 0
 2545 HDFG: 0

24 July 1968 (1)
 8-10 Jan. 1968 (1)
 13,14 Jan. 1969 (1)
 1 Aug. 1975 (2)
 15 Jan. 1976 (2)
 4,5 Aug. 1976 (2)
 13 Jan. 1977 (2)
 27,28 July 1977 (2)
 12,13 Jan 1978 (2)
 27,28,30 July 1978 (5)
 15,16,20 Jan. 1979 (5)
 1,2 Aug. 1979 (5)
 14-16 Jan. 1980 (5)
 12 Jan. 1981 (5)

Kuapa Pond

2546 1 seen
 2547 2, Christmas Count
 2548 HDFG: 6
 2549 HDFG: 0

19 Nov. 1961 CARR62
 31 Dec. 1961 ANON62
 14 Jan. 1965 (1)
 4,5 Aug. 1976 (2)

126

Paiko (Kuliouou) Lagoon

2550 HDFG: 0
 2551 HDFG: 0
 2552 HDFG: 0
 2553 HDFG: 0
 2554 HDFG: 0
 2555 HDFG: 0
 2556 HDFG: 0
 2557 HDFG: 0
 2558 HDFG: 0
 2559 HDFG: 0

1 Aug. 1975 (1)
 15 Jan. 1976 (2)
 4,5 Aug. 1976 (2)
 13 Jan. 1977 (2)
 27,28 July 1977 (2)
 12,13 Jan 1978 (2)
 27,28,30 July 1978 (5)
 15,16,20 Jan. 1979 (5)
 1,2 Aug. 1979 (5)
 14-16 Jan. 1980 (5)

Waimanaolo - Ditches

2560 observed repeatedly
 2561 HDFG: 1
 2562 HDFG: 11

June- July 1879 FINO80
 7 Jan. 1970 (1)
 13-15 Jan. 1970 (1)

2563 HDFG: 1

Island of Moloka'i

7 Aug. 1970

(22)

ISLANDWIDE INFERENCE

2564 HDFG: 3	Jan. 1955	(1)
2565 HDFG: 2	10-13 Jan. 1961	(1)
2566 HDFG: 8	15-17 Jan. 1962	(1)
2567 HDFG: 19	14-18 Jan. 1963	(1)
2568 HDFG: 17	15 Jan. 1964	(1)
2569 HDFG: 0	13,14 Jan. 1966	(1)
2570 HDFG: 3	13-16 Jan. 1967	(1)
2571 HDFG: 0	8-10 Jan. 1968	(1)
2572 HDFG: 0	13,14 Jan. 1969	(1)
2573 HDFG: officially classed as endangered	(1969)	(7)
2574 HDFG: 0	13-15 Jan. 1970	(1)
2575 Shallenberger: Pekelo reports having seen the species as late as 1973...Given the intensity of surveys in recent years, it is probably safe to say that the species is now absent. Yet the irregularity with which gallinule appeared in earlier counts suggests that birds from O'ahu may appear at a later date	(1977)	(3)
2576 HDFG: 0	31 July, 1 Aug. 1980	(5)
2577 HDFG: 0	12-14 Jan. 1981	(5)

127

MULTIQUADRANGLE/LOCALITY

2578 common...seen in taro ponds in Wailau, Pelekunu, Halawa Valleys	15 Apr.-15 June 1907	BRYW08
2579 Northwood; seen at Pauwalu, Kalamaula	4 Apr. 1933	(20)
2580 Shallenberger: Pekelo reports that gallinule were common in the taro patches of Halawa Valley and in north shore valleys	prior 1946 tsunami	(3)
2581 common but localized in brackish fishponds at Ooia, Kaluapuhi and Honomuni ponds	(1954-1964)	PEKN64
2582 Banko: found none in search of south Molokai beach areas with Weymouth Kamakana, HDFG	7 Oct. 1966	(18)
2583 HDFG: 0, Lee Shore	1,2 Aug. 1979	(5)
2584 HDFG: 0, Kamalo to Halawa	1,2 Aug. 1979	(5)
2585 HDFG: 0, Lee Shore	14,15,16 Jan. 1980	(5)

2586 HDFG: 0, Kaunakakai to Kamalo
2587 HDFG: 0, Kamalo to Halawa

14,15,16 Jan. 1980 (5)
14,15,16 Jan. 1980 (5)

UNDESIGNATED LOCATION

2588 Banko: Palmer collected 3 specimens
2589 Banko: Flood collected 2 specimens in taro field

1891-1893 (10)
Feb. 1895 (10)

QUADRANGLE / LOCALITY

ILIO POINT

Popohaku

2590 HDFG: 0
2591 HDFG: 0
2592 HDFG: 0

15,16,20 Jan. 1979 (5)
1,2 Aug. 1979 (5)
14-16 Jan. 1980 (5)

MOLOKAI AIRPORT

Maunaloa

2593 HDFG: 0

31 July, 1 Aug. 1980 (5)

Moomomi

2594 HDFG: 0
2595 HDFG: 0
2596 HDFG: 0

15,16,20 Jan. 1979 (5)
1,2 Aug. 1979 (5)
14-16 Jan. 1980 (5)

Palaau

2597 Banko: Munro collected 1 specimen

Dec. 1902 (10)

KAUNAKAKAI

Kalae - ?Meyer Lake

2598 met with in a small romantic lake...which lay at an
elevation of about 2000 feet

(1890?) SCHH00

2599 HDFG: 0	1,2 Aug. 1979	(5)
2600 HDFG: 0	14,15,16 Jan. 1980	(5)
 Kaluapuhi Fishpond		
2601 HDFG: 8	9 Aug. 1969	(1)
2602 Shallenberger: last recorded on HDFG:/USFWS counts (1977) when 9 were present...with abandonment of taro farming and continued shrinkage of this and other suitable habitat the species is no longer considered part of the islands wetland avifauna	Sep. 1969	(3)
2603 HDFG: 0	14,15,16 Jan. 1980	(5)
 Kaunakakai		
2604 HDFG: 0	15,16,20 Jan. 1979	(5)
2605 HDFG: 0	1,2 Aug. 1979	(5)
2606 HDFG: 0	14-16 Jan. 1980	(5)
2606aWalker: last seen (islandwide) in a small marshy area between Kaunakakai and Kamiloloa in 1971	(1977)	(46)
 Kuulapuu Reservoir		
2607 HDFG: 0	14-16 Jan. 1980	(5)
 KAMALO		
 Kakahia - Kawela		
2608 HDFG: 1	9 Aug. 1969	(1)
2609 HDFG: 0	15,16,20 Jan. 1979	(5)
2610 HDFG: 0	14-16 Jan. 1980	(5)
 Kamalo		
2611 3 seen on the mudflats near Kamalo	(1945)	CHIC45
2612 HDFG: 0	15,16,20 Jan. 1979	(5)
2612aShallenberger: HDFG & USFWS: introduced 3 pairs from Haleiwa, O'ahu	summer (?June) 1983	(54)
2612bShallenberger: 3 have been seen	Oct. 1983	(54)

HALAWA

Halawa - Valley

2613 seen	31 Dec. 1957	HANC58c
2614 HDFG: 0	15,16,20 Jan. 1979	(5)

Kainalu Lagoon

2615 gallinule had nested and raised their chicks there	(1943)	MUNG43
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Pukoo Fishponds

2616 fairly common	Dec. 1892	ROTW00
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Island of Maui

ISLANDWIDE INFERENCE

2617 HDFG: 0	14-18 Jan. 1963	(1)
2618 HDFG: 0	15 Jan. 1964	(1)
2619 HDFG: 0	14 Jan. 1965	(1)
2620 HDFG: officially classed as endangered	(1969)	(7)
2621 HDFG: 0	31 July, 1 Aug. 1980	(5)
2622 HDFG: 0	12 Jan. 1981	(5)

130

UNDESIGNATED LOCATION

2623 Wilder collected 1 specimen	(before 1905)	BRYW05
2624 Shallenberger: reintroduction attempt (by HDFG) appears to have failed, although there appears to be suitable unoccupied habitat available	(1977)	(3)

Plantation Irrigation Reservoirs (mostly in WILUKU & PAIA quads)

2625 HDFG: 0	27,28,30 July 1978	(5)
2626 HDFG: 0	15,16,20 Jan. 1979	(5)
2627 HDFG: 0	1,2 Aug. 1979	(5)
2628 HDFG: 0	14,15,16 Jan. 1980	(5)

2643:HDFG: 0	1,2 Aug. 1979	(5)
2644 HDFG: 0	14-16 Jan. 1980	(5)

KEANAE

Keanae Wetlands

2645 Shallenberger: Surprisingly, one farmer reported that he had seen gallinule in his fields as recently as three years ago. He appeared to be familiar with the bird by his description, and was surprised to hear that gallinule had not been seen elsewhere on Maui for several years.	(1977)	(3)
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Island of Hawai'i

ISLANDWIDE INFERNECE

2646 HDFG: 0	14-18 Jan. 1963	(1)
2647 HDFG: 0	15 Jan. 1964	(1)
2648 HDFG: 0	14 Jan. 1965	(1)
2649 HDFG: 0	13,14 Jan. 1966	(1)
2650 HDFG: 0	24 July 1968	(5)
2651 HDFG: 0	13 Jan. 1969	(5)
2652 HDFG: 0	24 July 1969	(5)
2653 HDFG: officially classed as endangered	(1969)	(7)
2654 HDFG: 0	15 Jan. 1970	(5)
2655 HDFG: 0	7 Aug. 1970	(5)
2656 HDFG: 0	12 Jan. 1971	(5)
2657 HDFG: 0	27 July 1971	(5)
2658 HDFG: 0	13 Jan. 1972	(5)
2659 HDFG: 0	18 Jan. 1973	(5)
2660 HDFG: 0	15 Jan. 1974	(5)
2661 HDFG: 0	23 Jan. 1975	(5)
2662 HDFG: 0	1 Aug. 1975	(1)
2663 HDFG: 0	15 Jan. 1976	(2)
2664 HDFG: 0	4,5 Aug. 1976	(2)
2665 HDFG: 0	13 Jan. 1977	(2)
2666 HDFG: 0	27,28 July 1977	(2)
2667 HDFG: 0	12,13 Jan. 1978	(2)
2668 HDFG: 0	27,28,30 July 1978	(5)

QUADRANGLE/LOCALITY

West Maui District

LAHAINA

Lahaina

2629 Banko: McGregor collected 1 specimen near Lahaina 2 Sep. 1900 (10)

WAILUKU

Kanaha Pond

2630 observed repeatedly (lagoon of Kahalui)	June, July 1879	FINO80	132
2631 have never seen any	23 Jan. 1949	CHIC49b	
2631a Walker: small release made in 1959...apparently without success	(1977)	(46)	
2632 HDFG: 0	27, 28, 30 July 1978	(5)	
2633 HDFG: 0	15, 16, 20 Jan. 1979	(5)	
2634 HDFG: 0	1, 2 Aug. 1979	(5)	
2635 HDFG: 0	14-16 Jan. 1980	(5)	

Naska Settling Pond

2636 HDFG: 0	27, 28, 30 July 1978	(5)
2637 HDFG: 0	15, 16, 20 Jan. 1979	(5)
2638 HDFG: 0	14-16 Jan. 1980	(5)

Waike (? Waihee)

2639 seen	June, July 1879	FINO80
2640 Banko: Finsch (?) obtained 1 specimen	11 Sep. 1879	(10)

MAALAEA

Kealia Pond

2641 HDFG: 0	27, 28, 30 July 1978	(5)
2642 HDFG: 0	15, 16, 20 Jan. 1979	(5)

2669 HDFG: 0
2670 HDFG: 0
2671 HDFG: 0
2672 HDFG: 0
2673 HDFG: 0

15,16,20 Jan. 1979 (5)
1,2 Aug. 1979 (5)
14-16 Jan. 1980 (5)
31 July, 1 Aug. 1980 (5)
12 Jan. 1981 (5)

UNDESIGNATED LOCATION

2674 seen by Captain Cook's naturalists during several days
excursion from Kealakekua Bay into the interior

Jan.-Feb. 1779 STRE50

QUADRANGLE LOCALITY

Kohala District

HAWI

Kehena Reservoir

2675 HDFG: 0
2676 HDFG: 0
2677 HDFG: 0
2678 HDFG: 0

15,16,20 Jan. 1979 (5)
1,2 Aug. 1979 (5)
14-16 Jan. 1980 (5)
31 July, 1 Aug. 1980 (5)

Puu Okomau

2679 HDFG: 0
2680 HDFG: 0
2681 HDFG: 0

15,16,20 Jan. 1979 (5)
1,2 Aug. 1979 (5)
14-16 Jan. 1980 (5)

Union Mill

2682 HDFG: 0
2683 HDFG: 0
2684 HDFG: 0

15,16,20 Jan. 1979 (5)
1,2 Aug. 1979 (5)
14-16 Jan. 1980 (5)

Upolu

2685 HDFG: 0
2686 HDFG: 0

15,16,20 Jan. 1979 (5)
1,2 Aug. 1979 (5)

2687 HDFG: 0	14-16 Jan. 1980	(5)
KAWAIHAE		
Kahua Ranch Reservoir (s)		
2688 HDFG: 0	14-16 Jan. 1980	(5)
2689 HDFG: 0	31 July, 1 Aug. 1980	(5)
KUKUIHAELE		
Kukuihaele		
2690 HDFG: 0	15,16,20 Jan. 1979	(5)
2691 HDFG: 0	1,2 Aug. 1979	(5)
2692 HDFG: 0	14-16 Jan. 1980	(5)
2693 HDFG: 0	31 July, 1 Aug. 1980	(5)
Lalakea Reservoir		
2694 HDFG: 0	15,16,20 Jan. 1979	(5)
2695 HDFG: 0	1,2 Aug. 1979	(5)
2696 HDFG: 0	14-16 Jan. 1980	(5)
Waipio Valley		
2697 Banko: long-term resident Matsunami told me on 22 Sep. 1966 that HDFG introduced ca. 6 gallinules to Waipio Valley in 1953 or 1954 and that some survived 4 or 5 years but did not nest successfully	(1953 or 1954)	(18)
2697a Walker: small release made in 1959...apparently without success	(1977)	(46)
2698 HDFG: 0	15,16,20 Jan. 1979	(5)
2699 HDFG: 0	14-16 Jan. 1980	(5)
2700 HDFG: 0	12 Jan. 1981	(5)

Kona District

PUU HINAI

Francis Brown

2701 HDFG: 0	15,16,20 Jan. 1979	(5)
2702 HDFG: 0	1,2 Aug. 1979	(5)
2703 HDFG: 0	14-16 Jan. 1980	(5)

MAKALAWENA

Opaepala (Makalawena) Pond

2704 HDFG: 0	27,28,30 July 1978	(5)
2705 HDFG: 0	15,16,20 Jan. 1979	(5)
2706 HDFG: 0	1,2 Aug. 1979	(5)
2707 HDFG: 0	14-16 Jan. 1980	(5)
2707aShallenberger: USFWS biologist Fefer reported 1 last year	1982	(54)

KIHOLO

Kiholo Fishponds

2708 single specimen shot	(1887)	WILS93
2709 Banko: Wilson collected 1 specimen	Nov.? 1887	(10)

KEAHOLE POINT

Aimakapa (Honokohau) Fishpond

2710 HDFG: 0	27,28,30 July 1978	(5)
2711 HDFG: 0	15,16,20 Jan. 1979	(5)
2712 HDFG: 0	1,2 Aug. 1979	(5)
2713 HDFG: 0	14-16 Jan. 1980	(5)

Kaloko Fishpond

2714 HDFG: 0	15,16,20 Jan. 1979	(5)
2715 HDFG: 0	1,2 Aug. 1979	(5)

2716 HDFG: 0
2717 HDFG: 0
2718 HDFG: 0

14-16 Jan. 1980 (5)
31 July, 1 Aug. 1980 (5)
12 Jan. 1981 (5)

HUALALAI

Huehue Mauka Ponds

2719 HDFG: 0
2720 HDFG: 0
2721 HDFG: 0

15,16,20 Jan. 1979 (5)
1,2 Aug. 1979 (5)
14-16 Jan. 1980 (5)

Kau District

KA LAE

Kaalualu

2722 HDFG: 0
2723 HDFG: 0
2724 HDFG: 0
2725 HDFG: 0

15,16,20 Jan. 1979 (5)
1,2 Aug. 1979 (5)
14-16 Jan. 1980 (5)
31 July, 1 Aug. 1980 (5)

NAALEHU

Honuapo

2726 HDFG: 0
2727 HDFG: 0
2728 HDFG: 0

15,16,20 Jan. 1979 (5)
14-16 Jan. 1980 (5)
12 Jan. 1981 (5)

PUNALUU

Punaluu

2729 HDFG: 0
2730 HDFG: 0
2731 HDFG: 0

1,2 Aug. 1979 (5)
14-16 Jan. 1980 (5)
31 July, 1 Aug. 1980 (5)

Kilauea District

KEAAU RANCH

Keaau

2732	Banko: long-term resident H. Shipman reported gallinules present about 1898 when he resided at Haena (Keaau) as a small boy	(ca. 1898)	(28)
2733	Banko: L. W. Bryan told me that H. Shipman brought in 4-5 gallinules from the mainland and liberated them at Keaau	(ca. 1928-1930)	(18)
2734	HDFG: 0	27,28,30 July 1978	(5)
2735	HDFG: 0	15,16,20 Jan. 1979	(5)

Mauna Kea District

Ahn (Kionakapahu) Pond

2736	HDFG: 0	27,28,30 July 1978	(5)
2737	HDFG: 0	15,16,20 Jan. 1979	(5)
2738	HDFG: 0	1,2 Aug. 1979	(5)
2739	HDFG: 0	14-16 Jan. 1980	(5)

Nakagawa (Lokoaka Pond)

2740	HDFG: 0	27,28,30 July 1978	(5)
2741	HDFG: 0	15,16,20 Jan. 1979	(5)
2742	HDFG: 0	1,2 Aug. 1979	(5)
2743	HDFG: 0	14-16 Jan. 1980	(5)

Wailoa (Waiakea Pond)

2744	HDFG: 0	27,28,30 July 1978	(5)
2745	HDFG: 0	15,16,20 Jan. 1979	(5)
2746	HDFG: 0	1,2 Aug. 1979	(5)
2747	HDFG: 0	14-16 Jan. 1980	(5)

Hilo

2748	no longer known...where formerly abundant	(1894-1902)	HENH02
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2749 Banko: Henshaw (?) collected 1 specimen

23 Apr. 1898

(10)

HONOKAA

Kukaiau

2750 HDFG: 0

2751 HDFG: 0

2752 HDFG: 0

15,16,20 Jan. 1979 (5)

1,2 Aug. 1979 (5)

14-16 Jan. 1980 (5)